

MANUFACTURERS' RECORD

A WEEKLY REVIEW OF THE IRON, STEEL, METAL & HARDWARE TRADES.

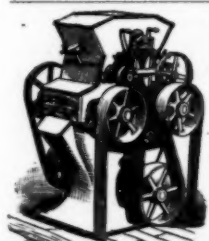
AND A MANUFACTURING AND TEXTILE PAPER, DEVOTED TO THE UPBUILDING OF SOUTHERN MANUFACTURES AND THE DEVELOPMENT OF THE MATERIAL RESOURCES OF THE SOUTH.

VOL. 8. No. 4. {
WEEKLY. }

BALTIMORE, SEPTEMBER 5, 1885.

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We make Rolls or Portable Mills for making New Process Corn Meal.
Complete outfits on any system Rolls or Stones for Wheat Grinding.

Send for Circular of our \$500 Flour Mill Outfit.



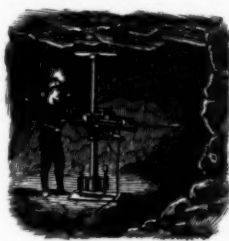
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MORSE, WILLIAMS & CO. Successors to CLEM & MORSE

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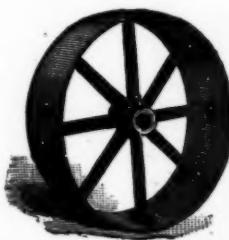
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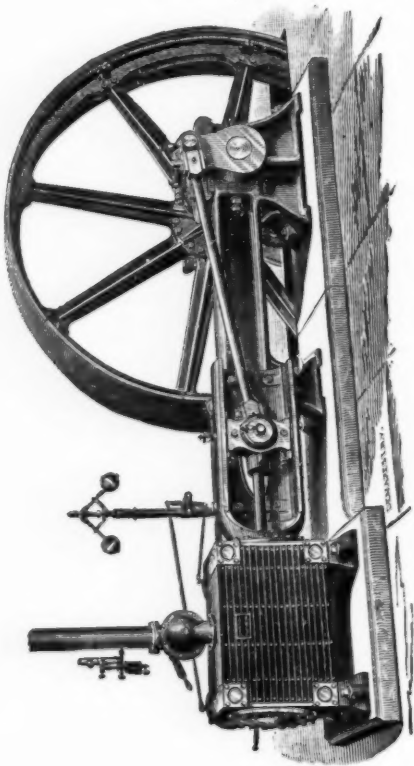
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In the extension of our business we have become familiar with certain special machinery, which we believe to be distinctly the best of its kind. Being well organized in our Selling Department, we have contracted to assume the entire purchase and sale of such, on a cash basis. *We sell nothing on commission.* This strengthens the purely commercial side of our business, while we at the same time distinctly pledge ourselves to the interests of our client, in all cases where our own peculiar specialties would not be indicated. It is too obvious to need allusion, that this business method concentrates responsibility, concentrates and reduces expenses, and, by concentration, reduces the necessary gross profit. We solicit the opportunity of demonstrating this assertion by a bid for your work.

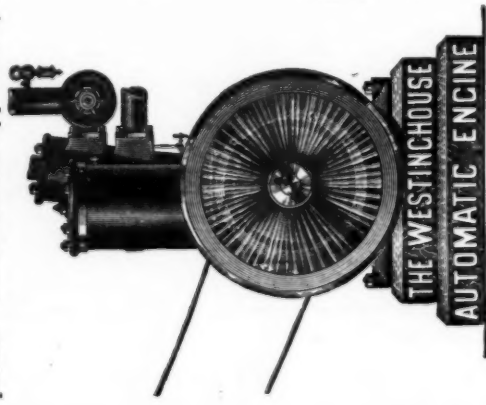
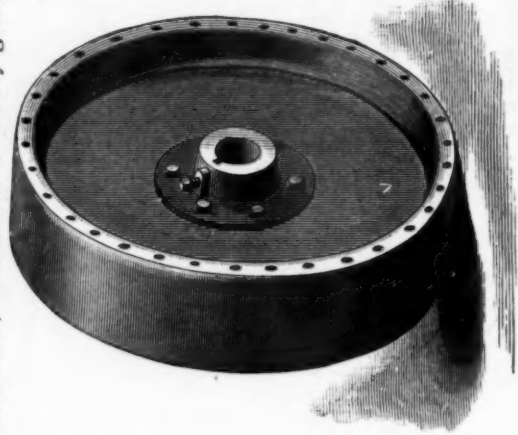
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We control by Special Contract The Reynolds-Corliss Engine, The Westinghouse Automatic Engine, The Huyett & Smith Fans and Ventilators, The American Paper Pulley, &c., and are close buyers and close bidders on General Machinery Outfits.



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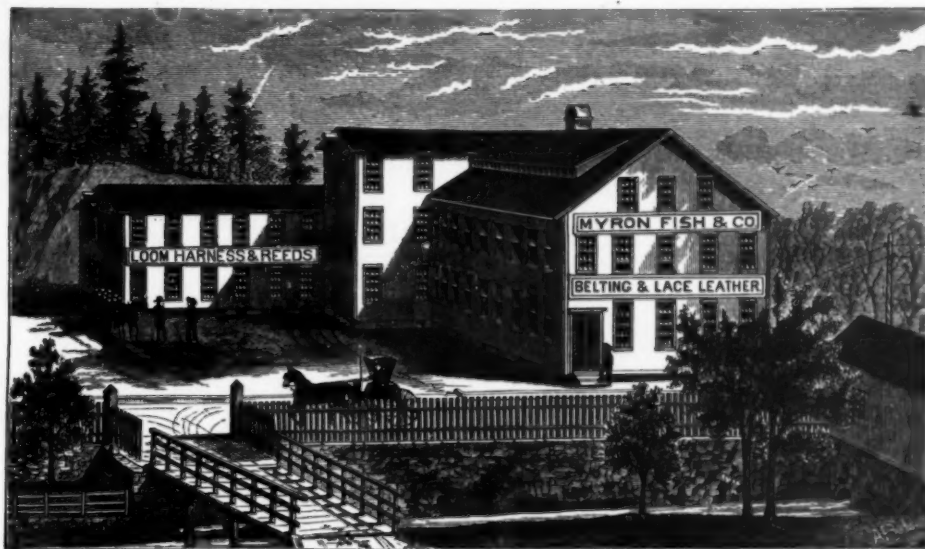
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RODDICK'S PATENT IMPROVED OIL CANS.

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We Manufacture both Worsted and Cotton Machine-Knit Mail Harness for Weaving Fine Worsted and Silk Goods. Also a Full Line of Supplies for Jacquard Looms.

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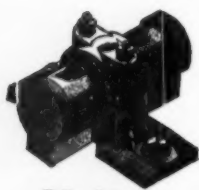
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WARPERS, * DRESSERS, * LOOMS, * &C.

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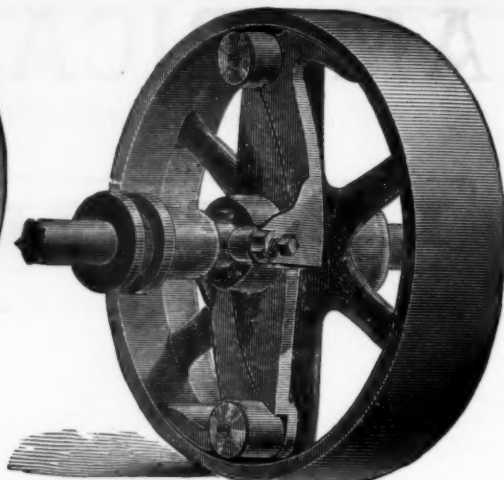
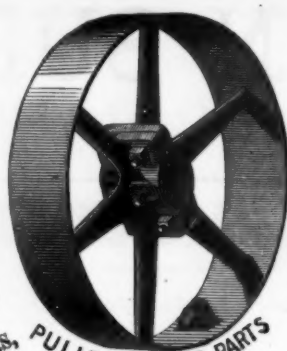


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Ball and Socket
Self-Oiling Pillow Block.DOUBLE-BRACED ADJUSTABLE
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Post Hanger.
6 inches from post to
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Manufacture as Specialties
Power Looms, Patent Bobbin or Quill
Winding Machines, Plain and Presser
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WARPING MILLS,
16, 18 and 20 yards Circumference,
WITH IMPROVED HECKS.

SHAFTING,
With Patent
ADJUSTABLE SELF-OILING HANGERS,
8, 10, 12, 13, 15, 18, 20, 24 and 30 in. drop.
Also WALL, POST AND GIRDER HANGERS.
Pulleys, from 4 inches to 10 feet in diameter.
PATENT FRICTION PULLEY.
Pulleys in two parts, any size required.
PATENT HOISTING MACHINES.
Oil Presses for Lard, Fish and Paraffine.



PATENT FRICTION PULLEY.

Simple, reliable and very durable.
Suitable for any kind of driving, they
serve equally well as driver or driven.

Special Driving,
such as Angular, Muley, and Gallows Driving,
furnished for any position
where possible to transmit power by belts.
PULLEYS from 4 inches to 10 feet in diameter.

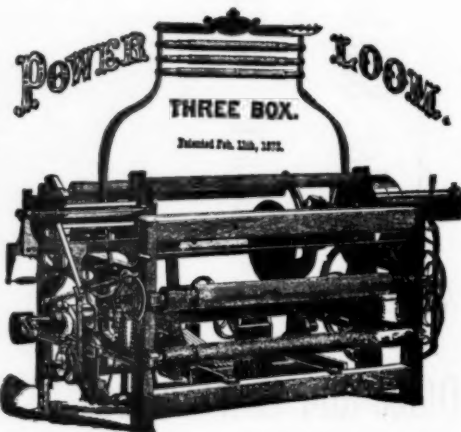
Why use old style Bearings, that require oiling
every day, when you can get Bearings at less cost
that only require oiling once in Six Months, and
thus save oil and labor enough to pay for the bear-
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trial always secures the trade.

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Patented Feb. 12th, 1872.

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MANUFACTURERS OF

THE LAMB KNITTING MACHINES, TUTTLE KNITTING MACHINE,

—AND—

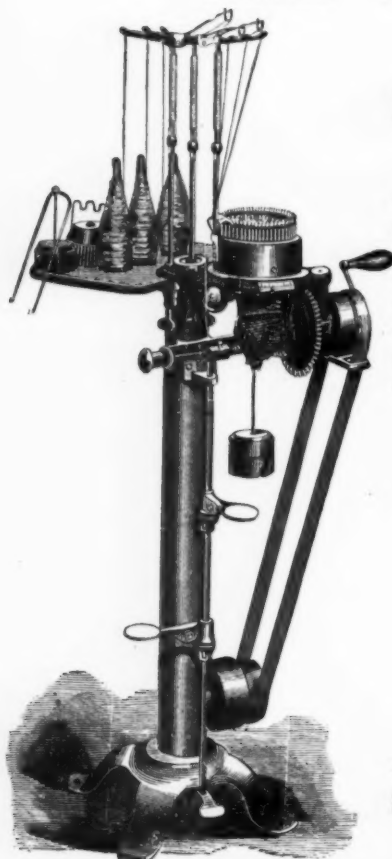
New AUTOMATIC CIRCULAR RIB KNITTING MACHINE

New Automatic Circular Rib Knitting Machine

For Knitting Ribbed Tops for Socks, Shirt Cuffs,
and Drawer Bottoms.

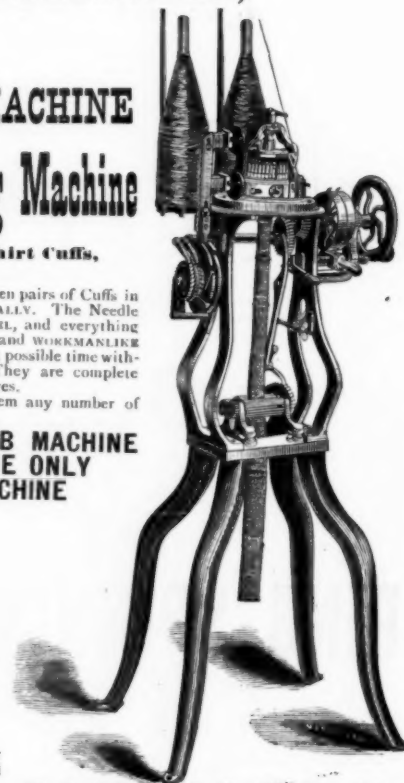
This machine will produce from twenty-five to thirty dozen pairs of Cuffs in ten hours, making the WELT and LOOSE COUSE AUTOMATICALLY. The Needle Cylinder and Dial are made of FORGED CAST STEEL, and everything about the machine is built in the most THOROUGH and WORKMANLIKE manner, with the view of having them run the longest possible time without repairs. They are complete within themselves. We make them any number of ribs desired.

**THE LAMB MACHINE
IS THE ONLY
MACHINE**



THE LAMB MACHINE.

Send for Full Particulars of
the Above Machines to



The Lamb Knitting Machine Mfg. Co's New
CIRCULAR RIB KNITTING MACHINE,
For Knitting Ribbed Tops, for Socks, Shirt Cuffs
and Drawer Bottoms.

That knits hosiery or tubular work of all sizes.
That narrows and widens on hosiery or tubular work.
That knits a regular, right-angle heel, such as is knit by hand.
That narrows off the toe.
That knits a sock or stocking complete.
That knits mittens and gloves of any size without a seam.
That forms genuine Ribbed or Seamed Work.
That knits the Double, Flat, or Fancy Webs.
That knits an elastic seam-stitch Suspender with button holes.
That knits the Afghan stitch, Cardigan Jacket stitch, Fancy
Ribbed stitch, the Raised Plaid stitch, the Nubia stitch, Shell
stitch, Unique stitch, Tidy stitch, &c., &c.

It is now the Standard Machine for manufacturing all
lengths of needle beds, from 8 inches by 60 inches, and cuts from
four needles to the inch to ten to the inch. More of these machines
have been made and sold than all others combined.

THE LAMB KNITTING MACHINE MANUFACTURING CO., CHICOPEE FALLS, MASS.

IN CORRESPONDING, PLEASE MENTION "THE MANUFACTURERS' RECORD."

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BUILDERS AND IMPORTERS OF

COTTON MACHINERY.

Wool, Worsted and Flax Machinery and English Card Clothing. Hardened and Tempered Steel Wire a Specialty.
MILL ENGINEERS. No. 19 PEARL STREET, BOSTON, MASS.

GREAT SUCCESS OF OUR
PATENT ELECTRIC STOP-MOTION,

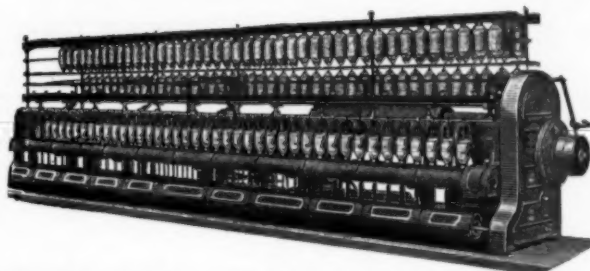
ALREADY APPLIED TO OVER
10,000 DELIVERY HEADS
71,000 INTERMEDIATE OF DRAWING, AND
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The quality of Sliver produced by our Frames surpasses all others, and Waste, Single and Roller Laps are prevented, and production increased.

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SLUBBING AND ROVING FRAMES WITH LATEST AND BEST IMPROVEMENTS.



SPECIALTIES:
EXHAUST OPENERS, LAPPERS, (LORD'S
EVENERS) IMPROVED ROLLER CARDS,
PRODUCE MORE AND MAKE LESS
WASTE THAN ANY OTHER.

7,000 SELF-STOPPING WARPERS,
Already working with latest improvements.

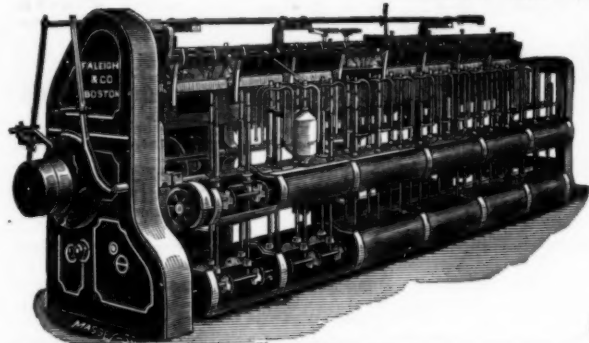
800 CYLINDER SLANERS
Now at work in America alone

Patent and plain Spindle, Spinning and Twisting Frames,
Spoolers, Reels and Circular Warpers, Cloth Folders, Size Kettles
plain and Fancy Looms, Spindles, Flyers and Fluted Rolls.

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Openers, * Lappers, * Cards, * Drawing,
Slubbing and Roving Frames,
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GOLD MEDAL AWARDED NEW ORLEANS, 1885, FOR BEST RUNNING BELTS.

Made PERFECTLY Straight and any Length without Joints.

For Main Driving it is the Best. Much Cheaper Than Leather.

MANUFACTURED BY

THE GANDY BELTING CO., BALTIMORE, MD.



THE "TRIUMPH" ROCK DRILL

and NORWALK AIR COMPRESSOR

Are the Latest and Most Improved Machines that were ever designed for the work required of them. They are the Most Simple, Economical and Effective now known, and will satisfy all Purchasers.

Boilers, Steam Pumps, Hoisting Engines, Pipe and Fittings, Electric

Blasting Apparatus, Powder, Caps and Fuse, Steam and Air Hose, Wire Rope,

—And General Mining and Contractors' Supplies.—

Complete Specifications for Rock Drilling and Mining Plants Furnished on Application.

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WHITINSVILLE SPINNING RING CO.

WHITINSVILLE, MASS., U. S. A.

SUPERIOR WORKMANSHIP.

NOT EXCELLED IN DURABILITY.

EVERY RING WARRANTED.



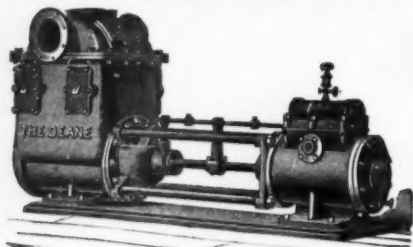
The Simplest and Best Method of Adjusting Rings.



SEND FOR SAMPLE AND PRICE-LIST.

THE DEANE STEAM PUMP CO., HOLYOKE, MASS.

MANUFACTURE



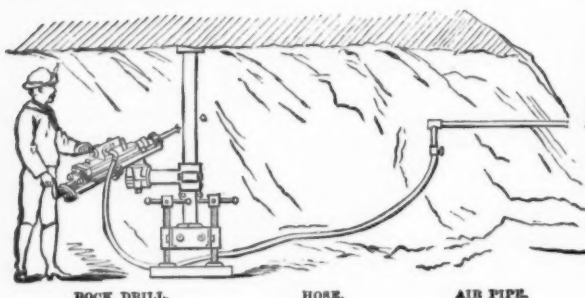
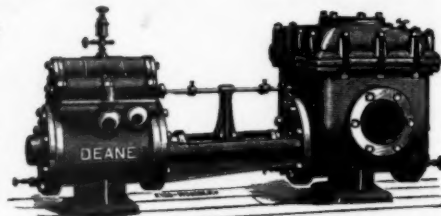
Every variety of Pumping Machinery

VACUUM PUMPS FOR SUGAR WORK, ETC.

IRRIGATION PUMPS ARE SPECIALTIES.

Water Works Pumping Engines for Cities and Towns.

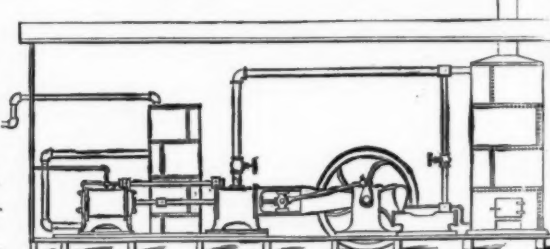
SEND FOR NEW ILLUSTRATED CATALOGUE No. 22.



ROCK DRILL.

HOSE.

AIR PIPE.



AIR RECEIVER.

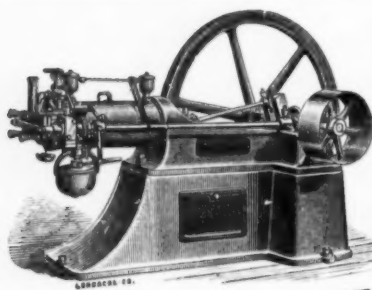
AIR COMPRESSOR.

FEED PUMP. BOILER.

RAND DRILL CO.

23 Park Place, NEW YORK.

Rock Drills,
Air Compressors, and
General Mining Machinery,
Rackarock Blasting Powder,
Blasting Batteries and Fuse.



Over 14,000 in Use.

Otto Gas Engine

20 to 70 per ct. less Gas consumption than ANY other ENGINE.

Working Without Boiler, Steam, Coal, Ashes or Attendance.

Started instantly by a Match, it gives full power immediately. When stopped, all expense ceases.

No explosions, no fires nor cinders, no gauges, no pumps, no engineer or other attendant while running. Recommended by insurance companies. UNRIVALLED IN EVERY RESPECT for hoisting in warehouses, printing, ventilating, running small shops, &c. Sizes: 1 to 25-horse power.

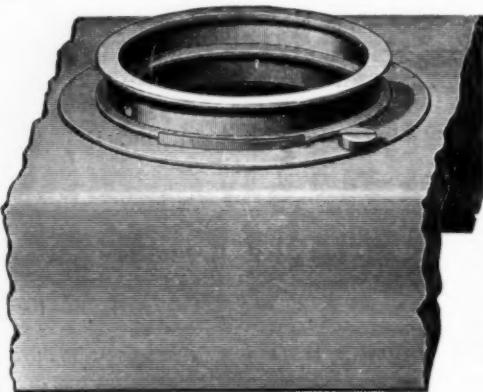
Branch Office, 214 Randolph St., Chicago.

SCHLEICHER, SCHUMM & CO., N. E. cor. 33d and Walnut Sts., Philadelphia.

DOUBLE ADJUSTABLE Spinning Rings.

GEORGE DRAPER & SONS,
HOPEDALE, MASS.

TELEGRAPH ADDRESS AND RAILROAD STATION,
MILFORD, MASS.



Year	Number of Rings sold	Number of Rings sold for repairs
1869.....	6,025.....	
1870.....	20,258.....	
1871.....	38,648.....	
1872.....	94,264.....	12
1873.....	117,301.....	
1874.....	168,388.....	500
1875.....	223,924.....	963
1876.....	185,319.....	947
1877.....	270,811.....	946
1878.....	215,814.....	3,359
1879.....	336,918.....	8,007
1880.....	507,860.....	11,264
1881.....	659,730.....	8,974
1882.....	636,715.....	22,515
1883.....	416,500.....	21,689
1884.....	319,869.....	25,105
1885, 5 mos. 112,522.....	12,118	
Total number sold in 16 years.....	4,390,260	116,349
Total number in use 4,273,911.		

The great durability of our Rings is shown by the fact that we have more rings in use over twelve years old than all we have sold for repairs.

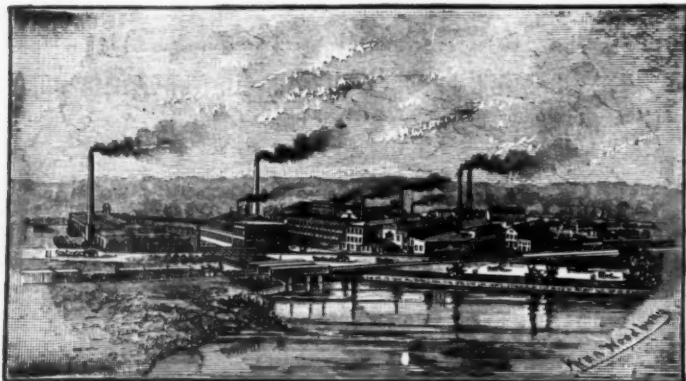
This statement shows unmistakably that a mill once supplied with our rings need think but little of the cost of repairs. As the number sold for repairs is an average of about twenty per cent. of the number sold the tenth year before, the average life of our rings will be at least twelve years.

Do not make the mistake of ordering new frames without specifying Double and Adjustable Rings. While they cost more to begin with, they are much the cheapest in the end, on account of their uniform excellent quality and unparalleled durability.

As an encouragement to use none but the best of Rings, we have decided to reduce the price on and after the first day of January, 1885, of those 1 3/4 inches or less in diameter, without holders and screws, to be used only to take the place of our rings worn out, to 12 cents each.

Washburn & Moen Manufacturing Co., Worcester, Mass.

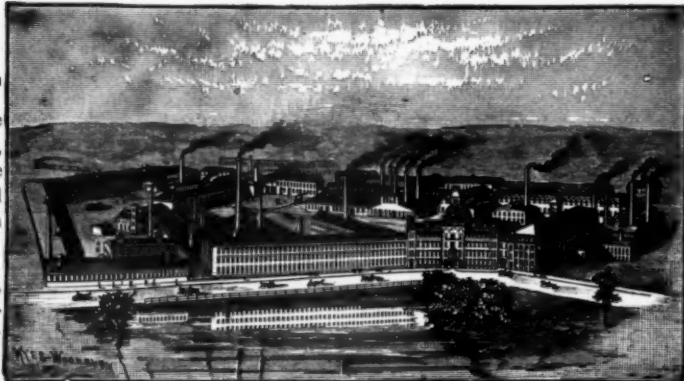
Wire Drawers, and Manufacturers of Iron and Steel Wire of Every Description.



Iron and Steel Telegraph and Telephone Wire.

Patent Steel Wire Bale Ties, Pump Chains, Chain Wire, Steel Wire for Springs, Needles and Drills, Watch Main Springs.

Send for Price-Lists, Circulars and Descriptive Pamphlets on Our Specialties.



NEW YORK WAREHOUSE:

21 Cliff Street,

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GLIDDEN PATENT

STEEL BARB WIRE.

The Best Fence Material in Use.

For Sale by Special Agents and Hardware

Proof against Fire, Wind and Flood.

Dealers in all Parts of the United States.

CHICAGO WAREHOUSE:

107 Lake Street,

Chicago, Illinois.

THE Daily Mercury, of Huntsville, Ala., has just been established. Its first issues give promise of a live, energetic paper that will do much good for Huntsville and the surrounding country.

A GREAT INDUSTRY.

The Development of the Phosphate Interests of South Carolina.

\$50,000,000 Brought Into the State Since 1868.

One of the great industries of the South, but one which is yet confined to a single State, is phosphate mining.

South Carolina has been wonderfully enriched by this extensive industry, which in connection with the manipulation of phosphates, it is estimated by the State Agricultural Department, has brought \$50,000,000 into that State since 1868. There are at present in operation in the State 14 companies engaged in mining phosphate on land, 11 river mining companies, and 11 fertilizer manufacturing companies. There have been mined and shipped from 1868 to 1884 2,699,000 tons of phosphate rock, equivalent to about \$16,000,000; there have been manufactured from 1871 to 1884 2,000,000 tons of fertilizers, equivalent to about \$34,000,000, giving a total of \$50,000,000, which has been brought into the State by the phosphate industry in the last 17 years. Of this amount the State has received as revenue \$1,200,000, which was paid as royalty, besides the heavy taxes levied on the products of the land companies and fertilizer manufacturers.

The production of phosphates for 1884 was 409,000 tons of rock and 236,884 tons of fertilizers.

In 1880, according to the United States Census, there were 28 fertilizer companies in South Carolina having an aggregate capital of \$3,493,300. — In the amount of capital invested in this industry South Carolina stood second in the list of States, Maryland ranking first with a capital in fertilizer manufacture of \$4,271,870, or not quite \$300,000 more than South Carolina. The third State on the list was New York, which had over \$1,000,000 less employed in the manufacture of fertilizers than South Carolina. In the number of hands employed, South Carolina ranked first, having more than twice as many engaged in the fertilizer industry than Maryland, and nearly three times as many as New York.

Since 1880 there has been a rapid development of this important industry in South Carolina, as may be readily seen from the fact that in that year only 190,000 tons of phosphate rock were mined, while in 1884 the amount was 409,000 tons, or largely more than double. The increase since 1880 has been steady. The amount mined in 1881 being 265,000 tons; in 1882, 330,000 tons; in 1883, 355,000 tons, and in 1884, 409,000 tons.

The total amount of phosphate rock mined in South Carolina since the discovery of these deposits has been as follows:

Years.	Tons.
1868-70.....	90,000
1871.....	50,000
1872.....	60,000
1873.....	90,000
1874.....	100,000
1875.....	115,000
1876.....	135,000
1877.....	165,000
1878.....	210,000
1879.....	200,000
1880.....	190,000
1881.....	265,000
1882.....	330,000
1883.....	355,000
1884.....	409,000
Total.....	2,699,000

Of this amount there was—

	Tons.
Of river rock.....	1,229,170
Of land rock.....	1,469,830
Total.....	2,699,000

Of this amount, 1,359,000 tons, or more than one half, has been mined during the last four years.

As already stated, the aggregate capital invested in the manufacture of fertilizers in South Carolina in 1880 was \$3,493,300. At the present time over \$6,500,000 is actually invested in this industry. This, of course, does not include the unpaid capital stock of incorporated companies, but only the actual investments in money.

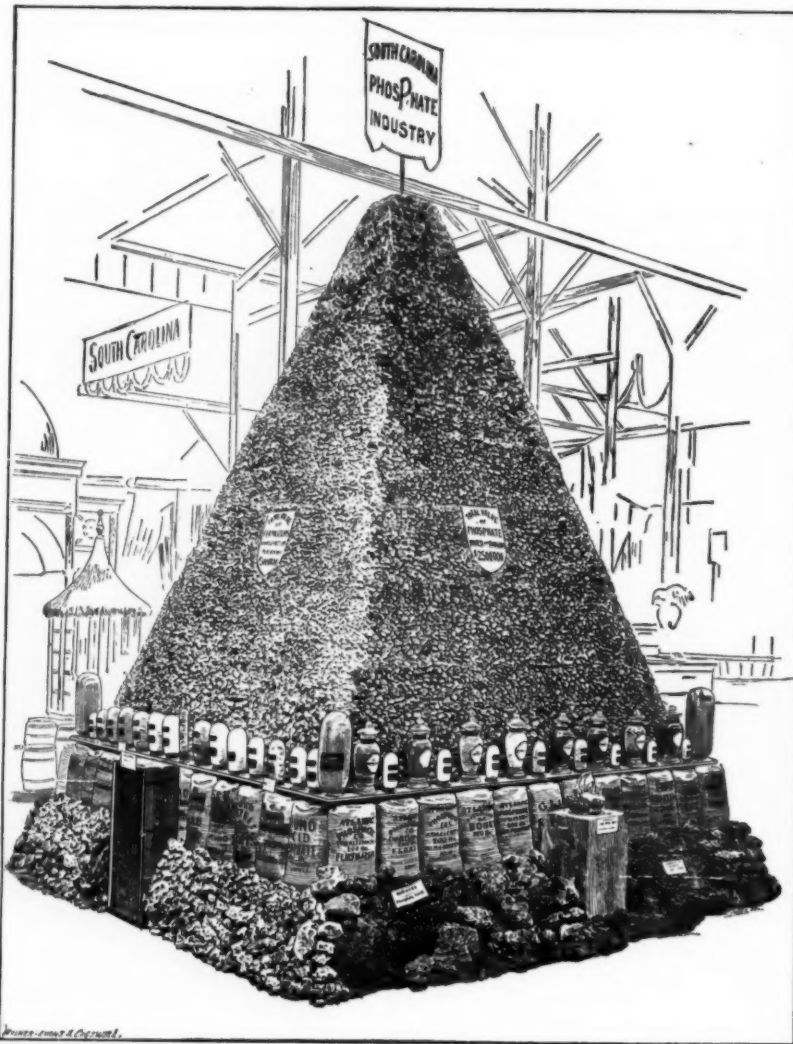
The list of the phosphate mining and manufacturing companies, not including several companies engaged in manufacturing fertilizers from cotton seed, is as follows:

Name.	Location.	Capital.
Hammond, Hull & Co., Beaufort.....	Beaufort.....	\$ 500,000
Hume Bros. & Co., limited, Beaufort.....	Beaufort.....	250,000
Phosphate Mining Co., Beaufort.....	Beaufort.....	500,000
Sea Island Chemical Co., Beaufort.....	Beaufort.....	50,000
Ashepoo Phosphate Co., Charleston.....	Charleston.....	100,000
Ashley Phosphate Co., Charleston.....	Charleston.....	200,000
Atlantic Phosphate Co., Charleston.....	Charleston.....	
Bolton Mines (Wyllie & Gordon), Charleston.....	Charleston.....	

J. M. Crofut, on Beaufort river.....
J. DeB. & J. Seabrook, on Parrot creek....
J. G. Taylor, on Parrot creek.....

One of these companies has a surplus of exactly three times its total capital, and another has a surplus of more than double its paid-up capital.

The successful mining of phosphate rock under water requires a very liberal outlay of money and the best machinery that can be devised, while for grinding and pulverizing the rock after being mined, costly machinery of the most improved character is essential. Constant experiments are being made to devise new and better machinery for this purpose, and many inventions that promised well at the start have proved a failure when tested in regular steady work. The illustration on this page shows the phosphate exhibit made at the New Orleans Exposition by South Carolina. In writing of this exhibit, our correspondent at the Exposition, Major L. A. Ransom, of Columbia, S. C., gave the following interesting facts:



SOUTH CAROLINA'S PHOSPHATE EXHIBIT AT THE NEW ORLEANS EXPOSITION.

Charleston Mining & Manufacturing Co., Charleston.....	1,000,000
Coosaw Mining Co., Charleston.....	185,000
C. H. Drayton & Co., Charleston.....	200,000
Edisto Phosphate Co., Charleston.....	300,000
Etiwan Phosphate Co., Charleston.....	300,000
Julius Fishburne, Charleston.....	
Marine & River Phosphate Mining & Manufacturing Co., Charleston.....	400,000
Oak Point Mines, Charleston.....	1,000,000
Pacific Guano Co., Charleston.....	100,000
C. C. Pinckney, Charleston.....	
Rose Mining & Manufacturing Co., Charleston.....	100,000
South Carolina Phosphate & Phosphatic River Mining Co., Charleston.....	500,000
Stono Phosphate Co., Charleston.....	100,000
Wando Phosphate Co., Charleston.....	305,800
Wilcox & Gibbs Guano Co., Charleston.....	125,000
Port Royal Fertilizer Co., near Port Royal.....	
Gregg's Phosphate Mines, Charleston.....	
St. Andrews Phosphate Mining Co., on Stono River.....	
Bradley's Phosphate Mines, near Charleston.....	
Pon Pon Phosphate Mines, on Edisto river.....	
Dotterer's Phosphate Mines, near Charleston.....	
Farmers' Phosphate Co., Charleston.....	
David Roberts, on Wimbee creek.....	
J. W. Seabrook, on Morgan river.....	

"The enormous pile of phosphate rock in the South Carolina exhibit is a very prominent feature in the Government Building. It is unique and very attractive. It is of great importance scientifically, commercially and agriculturally. The origin of the wonderful deposits represented by this pyramid has been the study of the scientists, and while they were endeavoring to settle this question, the business men of the country and the farmers were learning its practical value. The utilization of the South Carolina Phosphate Rock has done more to advance the agricultural interests of the South in late years than all other causes combined. In 1870 the first fertilizer works for the manufacture of this rock were erected. To-day there are eleven companies engaged in the work, and manufacturing about one hundred and sixty thousand tons of commercial fertilizers annually. There are twenty-five companies mining the rock, and there is invested in mining and manufacturing over \$6,000,000, giving employment to more than three thousand hands. Vessels from Italian

and other ports come directly to the phosphate regions of South Carolina with sulphur and copper pyrites, from which the sulphuric acid used in the manufacture of the rock is made, and take back with them cargoes of the rock for foreign use. About one hundred and fifty-five thousand tons of this rock is annually exported. The State's exhibit of phosphates here promises to still further develop this immense industry. The Japanese Commissioner at the Exposition has been in consultation with the South Carolina representatives, with a view to establishing a line of steamers between the Japanese ports and those of South Carolina, to bring over dried fish scrap, used for ammoniating the fertilizers, and carrying back in exchange the phosphate rock. If this scheme is found to be practicable, it will open a new and extensive market for the phosphates, and, perhaps, enable the Carolina companies to obtain a very essential ingredient at a lower price than they have heretofore paid. Of course, a reduction in price would be followed by increased consumption, and the business would be enlarged in all its branches. It would, doubtless, also result in the exchange of German Kainit, used to supply potash, for the rock, and this to the establishment of a line of vessels between Germany and South Carolina, that would soon lead to an influx into the South of the best class of German farmers and mechanics, so much needed in the whole South. The State receives \$1 per ton on all rock mined in the navigable streams, and last year this royalty amounted to \$153,000, or about one-third of the State taxes. The land deposits are owned by individuals, and are leased to miners.

The value of the crude phosphates mined last year was \$2,500,000, or about ten times the value of the gold and silver production of all the Southern States. It is estimated that 635,000 tons of commercial fertilizers are consumed annually in the United States, and of this amount the South uses 460,000 tons. Nearly all of these manures are made from the Carolina rock."

Mr. A. R. Guerard, A. R. S. M., compiled for the South Carolina Department of Agriculture "A Sketch of the History, Origin and Development of the South Carolina Phosphates," from which the following facts are gleaned:

South Carolina, sometimes known as Charleston phosphate, was discovered in the latter part of 1867, at a place called "Lamb's," about twelve miles above Charleston, on the Ashley river. The marls of Carolina appear to have been known and identified by geologists as far back as 1797. In 1832 attention was drawn by Mr. Ruffin, of Virginia, to the fact that these marls were valuable as a fertilizer; and in 1884 Tuomey, in his Geological Report of South Carolina, speaks of irregular and water-worn fragments of marl stones, found in the Ashley river marl-beds, and claims for these a value far above the Virginia marls, because they contained from 1 to 10 per cent. of phosphate of lime. In 1850 Prof. Holmes, of Charleston, read a paper before the "American Association for the Advancement of Science," in which he described nodules of marl rock, referring to them as "siliceous" masses. So-called "rocks" or "stones," found lying on the surface of the land, or turned up in plowing, were well known to old planters on the coast. But it is evident that, though these rocks or nodules were long an object of scientific investigation and local curiosity, the true nature and chemical composition of the Carolina phosphates were as yet unknown and unsuspected. It was not until 1867 that the late Dr. St. Julien Ravenel, of Charleston, upon receiving some specimens of these nodules, recognized their value, and pointed out their agricultural importance.

The first company organized to excavate the phosphate was the Charleston Mining and Manufacturing Company, which was formed with Northern capital, furnished by Messrs. Geo. D. Lewis and Frederick Klett. The first shipment of this company was six-

teen tierces by steamer Falcon, consigned to Geo. D. Lewis, Philadelphia, Penna. The manufacture of commercial fertilizers, under the chemical superintendence of Dr. St. J. Ravenel, had begun in Charleston shortly before this, using the Navassa phosphate, as a source of phosphoric acid. Henceforth native phosphate was substituted for the Navassa phosphate, and, under Dr. Ravenel's direction, new fertilizer works were put up to utilize the phosphate which was now being mined at home.

The phosphate deposit occurs in beds or strata of rough masses or nodules, of a size varying from a part of an inch to several feet in diameter, and is associated with numerous fossil bones and teeth. It is found on the bottoms of the shallow creeks and rivers which intersect the coast, and on the low lands which form a belt of country running parallel to and from 10 to 50 miles from the seaboard. The beds are from 6 to 20 odd inches in thickness, and the limit of a workable deposit is 8 feet under ground, or 20 feet under water. The phosphatic nodules are known as land or river rock, according to the element in which they are found. The average yield of the land deposit is 600 to 800 tons per acre, and though sometimes occurring in "pockets," that is, irregularly, these deposits are remarkably uniform, many contiguous acres often containing a phosphate-bearing stratum at an accessible depth. The river rock, having been washed into the river from the land, has occasionally accumulated in thicker beds than the original deposit of land rock. The river rock is obtained by dredging, chiefly in the Bull, Stono and Coosaw rivers; the land rock is dug mainly in the section of country lying between the Ashley and Stono rivers, and Rantowle's creek. Extensive strata of excellent quality are also known on the banks of the Edisto, and between the Edisto and Ashepoo rivers, but this deposit has not yet been worked to any extent. About and below Beaufort occur a number of very heavy beds of river rock, but generally of lower grade.

The land rock is lighter in color than that found under water or marsh mud, the former having a yellowish or pale brown color, the latter a dark gray or bluish black. The river rock is considerably harder than that occurring in the land deposit, but either variety may be readily ground to a powder so fine that it floats in the air (so-called floats). Carolina phosphate gives out, when rubbed, a peculiar fetid odor; the denser it is, the more conspicuous the odor, due to the presence of organic matter. It is very porous, some of it being capable of absorbing 15 or 20 per cent. of water. The surface of the nodules is frequently indented with holes and cavities naturally filled with clay and sand, which require to be carefully washed out; when the washing is imperfectly performed the phosphate is of lower quality. Carolina phosphate is remarkably uniform in composition, containing, on an average, from 55 to 61 per cent. tricalcic phosphate, and from 5 to 11 per cent. of carbonate of lime. Among its other constituents are silica, oxide of iron, fluorine, sulphuric acid, traces of alumina and magnesia, water and organic matter.

ORIGIN OF THE PHOSPHATIC DEPOSIT.

The most plausible theory advanced as an explanation of the formation of these nodules is that certain marine organisms, or mollusks, possess the power of secreting phosphoric acid from sea-water, and that through them the marl, and especially the upper strata, became charged with a certain amount of phosphate of lime. That the proportion of the phosphate of lime thus obtained to the whole body of the superficial layers of the marl was afterwards increased; first, by the removal of a considerable amount of carbonate of lime, rendered soluble by the percolation through it of rain water containing carbonic acid, derived from the decomposition of vegetable matter in the soil overlaying the marl; second, by a well-known

proneness of phosphoric acid, when diffusely distributed, to concentrate and to give rise to concretionary processes similar to those observed in the flint nodules and pebbles of the English chalk and in other formations.

THE WORKING OF THE LAND DEPOSIT.

Having carefully examined the land for phosphate, its depth, thickness of stratum, etc., a field is selected and drained by means of trenches, technically known as "line pits," dug around the tract and reaching below the level of the rock bed. This field is about 600 yards wide, and made as long as possible for transportation of the rock dug. A tram-road for horse, or steam, is constructed through the midst of the field in its length, and then, commencing at the "line pits," and working in towards the tram, pits measuring 6 by 12 feet are sunk in long parallel lines. The superincumbent earth is thrown up with shovels behind the men, and the phosphate rock dug out with picks and cast on the untouched ground in front. When trees are in the field they are undermined and thrown over on the side which has already been excavated. The rock is rolled from the pits in barrows and dumped on platforms on the roadside, whence it is loaded into cars for transportation to the washers. The labor on the phosphate fields is performed almost altogether by negroes, sometimes convict labor being employed. Italians have occasionally been imported as laborers, but they have not been found to do the work required as well as the blacks, who alone can stand the hot suns and malaria of the phosphate swamps in summer. The hands are not generally paid by the day, but by the foot dug, the price being in most mines twenty-five cents a foot for a pit of 6 by 12 feet, the rolling of the rock inclusive. At these wages they make about a dollar a day on the average, sometimes more and sometimes less, according to the character of the land and depth of rock from the surface. Land miners have not considered it profitable to work deposits at a greater depth than eight feet beneath the surface.

The clay, sand, &c., adhering to the rock, which amounts to one-half or two-thirds of the whole mass, are removed by washing. The crude rock as it comes from the pit is carried to the washers, large heavy pieces of machinery worked by steam, and situated near some creek or river where there is an ample supply of water. The rock is here passed first through roller crushers armed with steel teeth, which break up the larger nodules to a uniform size of not more than four inches in diameter. These then fall into long wooden troughs or tubs resting on a slight incline through which revolve wooden shafts furnished with iron teeth fixed in the form of a spiral screw. The nodules being forced by the screw up the incline against a strong stream of water are rubbed one on the other until, cleansed of all clay, etc., they are thrown out at the open end of the tub. After being screened they are then transported to the dry-sheds, or dumped outside the washer building.

The land deposits are owned by companies or individuals, or are leased upon a royalty for a term of years.

THE WORKING OF THE RIVER DEPOSIT.

The river deposit is now worked principally by dredging; but some years ago before the shallower creeks were exhausted of rock, large quantities of phosphate were raised by "handpicking," "tongsing" and "diving." "Handpicking" was resorted to in such deposits as run dry at low water, and consisted in loosening the nodules by means of the pick and crowbar, and throwing them into flat boats to be carried to the shore. "Tongsing" was the term applied to raising such deposits as were too deep to be hand-picked, but which were within reach of the oyster tongs. Diving was occasionally practiced by the negroes in summer in water from 6 to 10 feet deep, to bring up loose nodules, which were too heavy to lift with tongs. These apparently primitive methods

of working answered admirably as long as the deposits were shallow and labor cheap; but it was not long before the more powerful appliances of steam and machinery came into use.

A very large portion of the Carolina phosphate, and by far the largest portion of the river deposits, are now raised by dredging from deep waters, where the nodules lie on the bottom, sometimes covered by a layer of sand and mud several feet in thickness. The dredges heretofore employed have been found to work best in not more than twelve feet of water, twenty feet being the limit. At this depth they are able to tear up the thickest and hardest phosphate beds, and under favorable circumstances as much as 100 tons of rock a day have been raised to the dredge. The dredge, which is the ordinary single machine, empties the mass of nodules, marl, sand, mud, shells, etc., on a floating washer of simpler though similar construction to that employed for washing land rock. The clean rock is loaded into "lighters" or barges, and transported to dry-sheds on shore.

One of the most important operations in the preparations of phosphate rock for market is the drying of it, though it is one which has been much neglected by phosphate miners. The river rock has long been dried for foreign shipment in order to lessen the cost of freight, and to raise the percentage of phosphate of lime in the rock. But land rock, which has been chiefly consumed at home, is seldom dried even now to less than six or seven per cent. of water, and contains often as much as ten per cent., the local fertilizer works purchasing the rock wet and drying it as needed.

The most satisfactory method of drying employed so far is the hot-air process, sun drying being too slow and uncertain to be efficacious, and other methods tried having proved too expensive on the large scale. A hot blast of air is forced by a fan through perforated iron pipes into a brick kiln or dry-shed; into these sheds, which hold 500 tons or over, the wet rock is dumped upon the pipes, over which are sometimes laid logs of wood to aid in distributing the heat through the mass. In this way 500 tons can be dried in thirty-six hours to from one to three per cent. of moisture. This process would seem to entail a great waste of heat and fuel, but it answers sufficiently well in practice, and as long as wood is cheap is more economical than any other.

The river miners work under charters from the State, which grant them a general right to work a specified territory with any other comers, or under an exclusive right to such territory. In either case they pay a royalty to the State of \$1.00 for every ton of rock raised.

No systematic survey determining the extent of these phosphate deposits has ever been attempted, and widely varying estimates as to the quantity of rock have been made. These estimates run from 8,000,000 to 500,000,000 tons, but the first figures are obviously much too small, as there is one company controlling territory from which it is calculated 10,000,000 tons can be taken before the rock is exhausted.

CORRESPONDENCE relating to the manufacturing, mining, lumbering and all other material interests of the Southern States is solicited. Reaching so many capitalists in all parts of the United States seeking profitable investment in the South, the MANUFACTURERS' RECORD offers an excellent chance for the people in that section to place the advantages of each locality before those likely to be interested. We will take great pleasure at all times in telling what has already been accomplished in the South, and showing up the opportunities of doing still more.

Western North Carolina.

HIGHLANDS, N. C., Aug. 27, 1885.

Editor *Manufacturers' Record*:

Prof. Chas. Linden, of Buffalo, N. Y., during his recent stay here, delivered a discourse on the "Geological History of the Alleghany Mountains." He stated that this section was a portion of what was known to geologists as the old world, while the granite strata on which Highlands stands belong to the azoic age—rocks in which no signs of animal life can be found. The lecture was of a character to excite inquiry and investigation, with the following beneficial results: W. S. Neely, in searching among the hills and rocks on his land, about two and a-half miles south of Highlands, found as pure, clear, seamless mica as can be found, and in seemingly considerable quantity. Another person examining along the stage road to Walhalla, S. C., found that that most valuable summer grazing plant, Japan clover, had approached from the Chattooga river, in Georgia, to within one and a-half miles of Highlands, thus growing at an elevation of at least 3,000 feet. From the Billingsly mountain, in Georgia, at an elevation of 1,600 feet, north to points in North Carolina at an elevation of 3,000 feet, are found what are deemed incontrovertible evidences that this Blue Ridge Mountain has been inhabited by an unknown race, and afterwards deluged for a considerable period of time, the immensity of which no one perhaps may know. The evidence as to the mountains being inhabited is found in fragments of ovens, or bowls, of talc, as well as three of the bowls so formed as to be nearly ready to be cut from the rock. It seems to have been done in the stone age, and that their manner of manufacturing such vessels was first to give them the outside form, and then cut off from the large rock and do the inside work. Now for the evidence that this manufacture of bowls from talc was done prior to a flood of considerable duration, it need only be stated that large pieces of these vessels show holes bored or worked through them. The work was begun on some of the holes from the inside of the bowl, others from the outside; some go entirely through, others do not. These holes are evidence in themselves that they were done after the bowl maker had done his work, as their defacings on the vessels' polish would indicate. Many rocks are perfectly honey-combed with holes of various sizes, while the largest are all avoid at their initial apertures. Now as to what bored these holes can only be determined by comparing with similar ones found elsewhere, where the borer has been ascertained. In the first place we know that there is a lamelli-branchiate bivalve mollusk that bores holes in stones only while they are under water, as the marble pillars of a certain edifice in Italy, which were once solid, but after a long submergence were found to be honey-combed by the marine borer, which is known as the pholos. These borings correspond with other borings claimed to have been done by the pholos; and it is a well established fact that for the pholos to get in its work on stone requires submergence for a considerable time, and that this borer neither works nor lives out of water, as it can live in but one element. So the evidence seems conclusive that these mountains have been inhabited and afterwards deluged for a long and unknown cycle of time.

Mr. James R. Ball, of Franklin county, N. C., has just sold a tract of land for \$5,000 that could recently have been bought for \$1,000. An indication of fine, clear mica induced Mr. Edgecum, of South Boston, Va., to buy it. Mica indications are plenty in that section. J. W. WALKER.

If you are not already a subscriber to the BALTIMORE MANUFACTURERS' RECORD, send us \$3 and you will receive it regularly for one year, or six months for \$1.50.

CONSTRUCTION DEPARTMENT.

WE PUBLISH, every week, a list of every new factory, of whatever kind, projected anywhere in the South; every railroad undertaken, and every mining company organized. This information is always fresh, and, by enabling manufacturers to correspond with the projectors of such enterprises before their supplies of machinery have been purchased, is of great value. Manufacturers will find it to their interest to read this department carefully each week.

ALABAMA.

E. R. Upham, Mobile, Ala., is adding a large saw mill to his barrel factory. Machinery has been purchased.

The Alabama Ochre Co., will, it is reported, erect a large factory in Montgomery, Ala., for making paint from ochre. This company is now operating at Coosada Station, Ala.

The steam mill of T. J. Anderson, Eutaw, Ala., burned last year, has been rebuilt.

J. M. Townsend & Sons, Pine Level, Ala., will erect a large ginnyery. Have purchased engine.

McNeil, Tally & Wadsworth are building three miles from Pine Level, Ala., a large saw and grist mill, and ginnyery.

\$10,000 has been subscribed in Birmingham, Ala., towards erecting a soap factory. A company will be incorporated to build the factory.

Mr. Sanford and others are forming a \$10,000 stock company in Mobile, Ala., to erect an electric light plant.

J. H. Walker, Montgomery, Ala., will double the capacity of his broom factory.

Union Springs, Ala., will probably soon have a soap factory.

S. B. Shivers, Selma, Ala., contemplates purchasing rice milling machinery.

The Standard Gin & Machine Co., Montgomery, Ala., expect to add sash and door factory to their works.

It is reported that the money needed to insure the extension of the Georgia Pacific Railroad from Birmingham to Columbus has been secured.

The Dodson Nut Lock Co. is being organized in Birmingham, Ala., to build works to manufacture bolts, nut locks, fish plates, &c.; capital stock \$100,000.

The Curry Press Co., of Huntsville, Ala., are building a compress at Decatur, and report they will erect one at Birmingham.

Brooks, Tyler & Barker, Selma, Ala., previously reported as intending to build a new foundry will erect a building 60x50 for this purpose so as to devote the whole of their present building to their machine shop.

M. T. Singleton, Ragland, Ala., will build a 3-mile railroad from his coal mines.

The Union Warehouse & Elevator Co., Montgomery, Ala., the organization of which was reported last week, will purchase machinery at once for their proposed grain elevator.

There is some prospect of a cotton seed oil mill being built in Greenville, Ala.

The Woodward Iron Company, of Wheeling, Ala., it is reported, have arranged to build another furnace of 80 tons daily capacity.

J. D. Hunter & Co., Oxanna, Ala., have contracted to mine ore for the Woodstock Iron Co., Anniston, Ala.

John W. Hardy is building a large saw mill near Calera, Ala.

ARKANSAS.

W. S. Sterrett & Co., of Pine Bluff, Ark., will build a \$13,000 court-house at Lonoke, Ark.

A fruit canning factory is talked of at Sugar Loaf Springs, Ark.

The Riverton Mining Co., Bear, Ark., it is reported, will enlarge mining operations.

FLORIDA.

John T. Howard is building a large mill and ginning establishment on Little river, in Gadsden county, Fla.

The Wilmington Dredging Co. will build a narrow-gauge railroad along the Coast canal in Florida.

It is reported that a carriage factory will be started in Waldo, Fla.

A large hotel will be built at Brooksville, Fla., by parties in Jasper, Fla.

A sash and wood-working factory is being erected at Lake DeFuniak, Fla.

The Silver Springs Park Florida Land Company, capital stock \$100,000, has been organized at Silver Springs Park, Fla., to build saw mills, erect dwellings, improve lands, &c.

A company is to be organized in Jacksonville, Fla., as the East Coast Railway Company by E. A. Pratois, C. F. Smith and others to build a railroad between Jacksonville and Titusville.

GEORGIA.

It is rumored that a large guano factory will be established at Fort Gaines, Ga.

Armory Dexter, J. D. Hough, M. M. Hirsch, F. J. Jenkins and F. E. Blanchard, of Columbus, Ga., have organized a company, to erect a cotton seed oil mill in Americus, Ga., and to manufacture fertilizers, wool, cotton, &c. Capital stock \$25,000, with privilege of increasing to \$50,000. Principal office to be at Americus, Ga.

J. DeLaughter, Leliaton, Ga., wants to correspond with dealers in portable boilers and engines.

U. M. Gunn, of Macon, Ga., and others, propose to establish a barrel factory. There is also talk of a handle factory.

There is some prospect of a barrel factory in Columbus, Ga.

It is stated that the money has been raised for building the railroad from Newnan to Franklin, Ga., and that W. B. Berry, of Newnan, will survey the route.

W. H. Mattox and J. W. McCalla will, it is stated, build a cotton seed oil mill and fertilizer manufactory in Elbert county, Ga.

A company is being organized in Athens, Ga., to build an ice factory.

The Green Cove & Melrose Railroad will probably be extended to Melrose and Gainesville.

The Mutual Gas Light Co., of Savannah, Ga., have made extensive alterations and additions to their plant.

Gardner & Childers are erecting a planing mill near the pottery works at Athens, Ga., and in a few days will be ready for business.

KENTUCKY.

King & Co., of Huntington, W. Va., have leased ground corner Main and Winn streets, Winchester, Ky., on which they have begun the erection of a large iron foundry and machine shops.

The Kentucky Lumber Co., of Burnside, Ky., is building a saw mill at Point Burnside.

H. A. Springette, Henry Franklin, and J. R. Robinson have organized in Covington, Ky., the Checker Cure Co., capital stock \$10,000, to manufacture drugs and medicines.

The Golden King Mining Co., capital stock \$500,000, has been incorporated in Louisville, by Chas. R. Long, M. K. Allen, J. Monte Hunter, Jacob Leszinsky, J. C. Bourne, P. C. Kennett and C. R. Gregory, for mining operations.

Setzer & Co., Constantine, Ky., are building a saw mill.

LOUISIANA.

A. J. Michaelis and others, New Orleans, La., will erect an ice factory to cost about \$100,000. Work on it will probably commence at once.

E. R. Shankland and others, Jennings, La., are organizing a \$5,000 company to put up figs, peaches, &c. Want catalogues of canning machinery.

R. T. Hanson, Donaldsonville, La., invites proposals for plans for a court-house to be built at that place.

MARYLAND.

The glass factory, previously reported as to be built at Annapolis, Md., is now under construction.

The Border State Savings Institute, Baltimore, will erect a new bank building.

MISSISSIPPI.

Efforts will be made in Vicksburg, Miss., to secure electric lights for that city.

Corinth, Miss., is talking of building a compress.

L. K. Adams is establishing a tannery in Columbus, Miss.

NORTH CAROLINA.

Charles Winstead and others, Milton, N. C., are erecting a tobacco factory.

F. S. Coburn and E. H. Fonvielle will build next spring a rice mill at Lloyd's Meadow, Onslow county, N. C.

A tobacco warehouse and two tobacco factories will probably be built at Greensboro, N. C.

R. V. Minor and Thos. C. Rogers & Co., Oxford, N. C., will erect tobacco warehouses.

Goodwin & Hiss, of Raleigh, N. C., will manufacture a patent fence.

J. R. Zearing, of Chicago, is now in Charlotte, N. C., where he proposes to build a street railroad.

Oates Brothers, Charlotte, N. C., have decided to put the electric light into their cotton mill; have not given out contract for same yet.

The Alamance Tobacco Association, J. L. Erwin, president, Company Shops, N. C., will erect a tobacco warehouse.

Strupe & Son, Clemmons, N. C., have lately established a saw mill.

P. C. Bean, Cherryville, N. C., has purchased machinery to establish a ginnyery.

SOUTH CAROLINA.

H. C. Grady, Pickens, S. C., is building a ginnyery and will probably put in cotton seed crusher machinery.

W. O. Sturkey, McCormick, S. C., contemplates developing a manganese mine on his property.

The saw mill, previously reported as being built at Blackville, S. C., is being put up by Grandy & Co., who are also erecting a planing, shingle and lath mill. Will cost about \$7,000.

Rice & Coleman, Union, S. C., have received the contract for building the Greenville & Laurens Railroad.

Dr. H. G. Coleman, Laurens, S. C., contemplates erecting at that place a grist and flour mill, a saw and planing, and a cotton mill.

TENNESSEE.

Dr. Dement will erect in Chattanooga, Tenn., a two story building, 50x200 feet.

The Knoxville (Tenn.) & New River Railroad will be extended. Officers are Wm. Kirklen, Wampum, Pa., manager; Wm. B. Enos, Newcastle, Pa., superintendent.

The Chilhowee Mineral Springs Co. has been organized at Athens, Tenn., to carry water into that town from the Chilhowee Springs.

The Cleveland Woolen Mills, (C. L. Hardwick, supt.,) Cleveland, Tenn., will rebuild their woolen mills at once; will shortly purchase machinery. Mill and machinery will cost \$40,000.

Allen Pickard has built a distillery at Walden's Ridge, near Chattanooga, Tenn.

John W. Campbell and George W. Henson, of London, Tenn., have become interested in the firm of Ristine, May & Co., furniture manufacturers, Chattanooga, Tenn. Their furniture factory will be enlarged.

The right of way has been granted in Memphis, Tenn., to the Citizens' Street Railroad Co., Napoleon Hill, president, to build four street railroads. The company has a capital stock of \$250,000, and work, it is reported, will begin at once.

A tobacco factory will probably be erected in Greeneville, Tenn.

S. C. Dodds & Co., of Indiana, are corresponding with parties in Chattanooga, Tenn., with a view to establishing a chair and table factory.

W. H. Worten, Mount Zion, Tenn., (P. O. Atoka,) will add a grist mill and cotton seed crusher to his gin.

J. A. Meadows, Mount Zion, Tenn., (P. O. Atoka,) is erecting a saw mill.

C. C. Bailey near Alamo, Tenn., whose mill is reported in this issue as burned, will rebuild.

The Chesapeake & Nashville Railway Co., Nashville, Tenn., are negotiating for property on which to establish machine shops.

The Standard Charcoal Co., of Goodrich, Hickman County, Tenn., previously reported as building a furnace to make pig iron, expect to complete their furnace in time to go into blast November 1st. This furnace will be different in construction and workings from the ordinary charcoal furnace.

H. C. Evans & Co., Chattanooga, Tenn., will put some additional machinery into their flour mill.

TEXAS.

Hardeman county, Texas, will build a \$10,000 jail.

The Tull Motor Co. has been organized in Galveston, Texas, with Thomas Goggan president and A. C. Garsia, secretary, to introduce an invention designed to run locomotives by compressed air.

Stone & Russell, of Tennessee, are prospecting in Lamar county, Texas, with a view of erecting a saw mill.

Harry Burnett, of England, is investigating the advantages of San Antonio for the establishment of a meat canning factory.

The contract for the construction of the Fort Worth & New Orleans Railroad has been signed.

LOCKWOOD, GREENE & CO.
MILL ENGINEERS
Office, 65 Westminster St., Providence, R. I.

Carefully prepared plans, specifications and estimates furnished for the construction, equipment and organization of new mills and the revision and improvement of old.

VIRGINIA.

A large hotel will probably be erected at Patrick Springs, Va.

The Thomson-Houston Electric Light Co., of Boston, have received contract to furnish Danville, Va., with electric lights.

The Lexington Manufacturing Co., Lexington, Va., are negotiating for the erection there of a paper mill.

S. R. White & Co., Norfolk, Va., manufacturers of agricultural implements, are building a large foundry.

WEST VIRGINIA.

John Smith, Mill Point, W. Va., will erect a saw mill on Swage creek, W. Va.

P. M. Hale, of Weston, W. Va., has received contract for building the addition to the Insane Asylum for \$24,174.

BURNED.

Saw mill of W. J. Joiner, Jr., near Tennessee, Ga.

The distillery of Sperry, Wade & Co., three miles from Nashville, Tenn. Loss on machinery and buildings is \$70,000.

The machinery of J. B. Hubbard's furniture factory, New Orleans, La. Loss \$2,000.

Grist mill of Vonberg & Henry, Spring Place, Ga.; loss \$2,000.

C. C. Bailey's mill, near Alamo, Tenn.; will be rebuilt.

W. P. Pope's mill at Scott's Hill, N. C., has been blown down by the late storm; loss \$1,000.

The rice mill of Chas. S. Bennett & Co., S. C., was damaged \$5,000 to \$10,000 by the storm.

A cyclone in Charleston, S. C., did great damage to hundreds of dwellings, warehouses and factories; aggregate loss estimated at over \$1,500,000.

Will Enlarge—Business Very Heavy.

MERIDIAN, MISS., August 25th, 1885.

Editor Manufacturers' Record:

The Progress Machine Works of this place are finding business exceedingly good, working double the force of same date last year, now having 31 men on the force. They have recently leased the yard and buildings belonging to Meridian Warehouse & Compress Co. and are using one quarter of it as a wood-shop for erecting their "Self Tramping" Cotton Press. This year the balance of the yard will be run by them as a cotton warehouse, but it is the present intention of the Progress Machine Works to convert the whole premises into a manufactory next year by putting in a special new plant for building cotton presses. Next year they expect to work from 50 to 100 men. The specialties of this firm are engines for ginning purposes and cotton presses; a new design of each was placed on the market this season. The expectations of the firms have been more than realized. They find themselves thus early in the season very greatly behind orders and that their rapidly-growing business necessitates great additions to manufacturing facilities for next year's trade. G. W. SOULE.

NEW IBERIA, LA., Aug. 29, 1885.

Editor Manufacturers' Record:

We have erected a bolter to our grist mill and increased our capacity by adding another burr. The large shingle mill of Messrs. Gebert & Russell, recently burnt, is nearly completed, and will be in operation in a few days. CALLAHAN & LEWIS.

A \$500,000 Company.

WILMINGTON, N. C., Aug. 26, 1885.

Editor Manufacturers' Record:

The organization of our Carolina Oil & Creosoting Company, capital \$500,000, has been completed. We will establish other creosoting works North and South.

HANSEN & SMITH.

Building a Foundry.

BEAUMONT, TEX., Aug. 29, 1885.

Editor Manufacturers' Record:

We are building a new foundry and pattern shop, using our old one to enlarge machine shop; building almost complete. Will erect two cupolas—one 40 feet; one 24 feet. Would like to hear of a good foundry crane manufacturer. Expect to go in in two months. BEAUMONT IRON WORKS.

A \$40,000 Woolen Mill.

CLEVELAND, TENN., Aug. 31, 1885.

Editor Manufacturers' Record:

We are now making active preparations to rebuild our woolen mills. Will build 3-set mill, one story, of brick, and as near fire proof as we can make it. Will buy the machinery within next month. When complete will cost \$40,000. C. L. HARDWICK, Supt. Cleveland Woolen Mills.

Saw and Planing Mills.

BLACKSVILLE, S. C., Aug. 25, 1885.

Editor Manufacturers' Record:

We are erecting a saw mill, planing mill and shingle and lath mill, and will manufacture all kinds of wood material for buildings, and also overhaul and repair engines and all other kinds of machinery. Our firm is composed of workmen and each one is a practical workman. Our outfit will start up at a cost of \$7,000, and will be in operation by December. GRANDY & CO.

An Ice Factory.

LAKE MAITLAND, FLA., Aug. 29, 1885.

Editor Manufacturers' Record:

Dr. Russell H. Nevins, proprietor of the Mayo Ice Factory, at Mayo Station, S. F. R. R., will erect a 10-ton daily capacity "Pictet Ice Machine" at Tampa, Fla., within the next 60 days. He is now in New York having said machine constructed.

C. H. CAMPBELL, Supt.

A Paving Company.

CHARLESTON, W. VA., Aug. 25, 1885.

Editor Manufacturers' Record:

Our company owns the patent of a successful method of laying street pavements of hard-burned brick. We offer to sell royalty licenses to cities wanting to pave, or we will contract to pave streets, furnishing material. AMERICAN BRICK PAVING CO.

Will Double Ice Factory.

CLARKSVILLE, TENN., Aug. 28, 1885.

Editor Manufacturers' Record:

We intend to double the capacity of our ice factory, making 12 in place of 6 tons per day. Will enlarge also our bottling works so as to bottle 2,500 per day, instead of 1,500 as now. Our change will cost us \$10,000.

BOWLING BROS.

A Gin and Grist Mill.

YAZOO CITY, MISS., Aug. 27, 1885.

Editor Manufacturers' Record:

The gin house and public grist mill at Anding, Miss., is an iron-clad building, (corrugated siding and iron roofing); 260-saw Carver gin stands; cost \$4,300. Contemplate adding small saw mill next summer. Gin supplied with latest improvements—cleaner, feeders, condenser and Westinghouse engine. MANN & PUGH.

An Ice Factory.

ST. AUGUSTINE, FLA., Aug. 28, 1885.

Editor Manufacturers' Record:

I intend to start this fall an ice factory, capacity of 15 tons per day, making ice from pure artesian water. Have the well already drilled for that purpose, flowing 400 gallons per minute. E. F. JOYCE.

Saw and Shingle Mill.

GOLDSBORO, N. C., Aug. 26, 1885.

Editor Manufacturers' Record:

I am erecting a mill on Neuse river in sight of Goldsboro, close to three railroads—the N. C. R. R., the A. & N. C. R. R. and the W. & W. R. R. It is a complete saw mill for manufacturing lumber. Will have also a shingle mill and a lath mill attached. Will be ready to work 1st September next. I am pleased with the MANUFACTURERS' RECORD. H. C. PARROTT.

A New Foundry.

SELMA, ALA., Aug. 27, 1885.

Editor Manufacturers' Record:

Our present shop is 120x40 feet, of brick, covered with tin. One-half of this is used as a foundry. Our present lot is 150x150 feet, and we have recently bought the adjoining lot of same size. On this we shall build a brick foundry this fall 60x50 feet, and use the whole of our present building as a machine shop.

BROOKS, TYLER & BARKER.

New Mills at Mount Zion.

MOUNT ZION, TENN., Aug. 27, 1885.

(P. O. Atoka.)

Editor Manufacturers' Record:

We have not determined about rebuilding our burnt property. W. H. Wooten will connect with his gin a grist mill and cotton seed crusher and separator. J. A. Meadows is erecting a 20-M-foot saw mill to manufacture poplar. The firm of McClamroch & Sledge have dissolved since their burning out. D. A. McCLAMROCH.

Will Build Sash and Door Factory.

MONTGOMERY, ALA., August 29th, 1885.

Editor Manufacturers' Record:

We have started work on our new shops, will put in a 40 horse-power automatic engine with full set of new and improved machinery for all kinds of wood-work, also expect in a short while to add sash door and blind machines, and all necessary machinery in the make up of a first-class wood working establishment.

STANDARD GIN & MACHINE CO.

A \$50,000 Manufacturing Co.

NEW ORLEANS, August 29th, 1885.

Editor Manufacturers' Record:

A stock company of \$50,000 capital stock, all subscribed and paid for, was organized here on August 14th, for purpose of manufacturing the Martinez Lubricator under letters patent granted me. The erection of suitable works will be shortly commenced here. Several other companies are now organizing through the Northeast and West to manufacture this oil.

A. A. MARTINEZ.

Huntsville Prospering.

HUNTSVILLE, ALA., Aug. 25, 1885.

Editor Manufacturers' Record:

Huntsville is actually taking on a boom. The faces of her citizens look brighter and more cheerful than I have ever seen them, and hopes are high and faith strong in the future. Another manufacturing establishment in the way of a cigar factory is added to the list this week. Mr. F. B. Dierk, of Cincinnati, is proprietor, and is a young man of energy and practical knowledge of his business. The daily Mercury will make its appearance next Thursday morning, and will be 28 columns, containing the latest telegraphic news and market reports. It will be the only daily published within a radius of 100 miles of Huntsville, and will have a large circulation over North Alabama. The enterprise is meeting with a hearty and substantial encouragement far beyond its expectations. You are doing a great work for the South, and I wish you still greater success. BEN. P. HUNT.

Law Department.

Edited by B. HOWARD HAMAN, Attorney at Law, Baltimore, Md.

It is the province of this Department to reply to enquiries that may be made by our patrons respecting the legal aspects of any matter that may arise in their business. Any questions as to doubtful points of law will be answered without charge in this column. All questions submitted must be accompanied by the name and address of the sender, not however, for publication. Letters should be addressed, Editor Law Department, MANUFACTURERS' RECORD.

RICHMOND, VA., August 26, 1885.

Editor Law Department,

Manufacturers' Record:

Dear Sir—Will you please answer the following question: A concern in this city recently bought a safe from a Pittsburg house, and an agreement was made and signed by both firms, saying that the safe should remain the property of the Pittsburg house until it was paid for. Sometime after this agreement was made the purchasers of the safe gave the manufacturers their notes for the deferred payments, though nothing was said about taking notes in the contract. Now the Richmond firm has failed, and I, as assignee for their creditors, have the safe in my possession. All the deferred payments but one have been made. Ought I to deliver the safe over to the attorney for the manufacturers, or can I successfully resist their demand for the safe, since nearly all the payments have been made. In one word, I wish to know whether law or equity governs this case.

Reply.—Equity has nothing to do with it; the contract governs it. These contracts, when properly drawn, always enable the manufacturers to get their property back under circumstances such as you have mentioned. The fact, however, that notes were taken in your case after the contract was signed, will prevent the Pittsburg people from recovering their property, as the taking of the notes operates as a new contract.

LOCH HAVEN, PA., August 29, 1885.

Dear Sir—I sent on the 13th of last July a lot of dimension stuff to a boxmaker in Baltimore, to fill an order of last spring. After he got our bill he wired us that he could not receive it, as he did not need it. We wrote at once for him to take it, and we would make the time satisfactory, and to let us know at once whether that would be satisfactory. We have not heard from the party in Baltimore yet, though we have often wired and written to him. Can we compel him to take the goods?

Reply—Yes, provided the sale was a formal one, i. e. a written order, signed by the purchaser.

STAUNTON, VA., August 27, 1885.

Dear Sir—Will you please inform me whether a note signed in lead pencil is good?

Reply—Yes, if the note is good in other respects. A penciled signature is as good as any other, so long as it lasts.

BALTIMORE, MD., August 31, 1885.

Dear Sir—Will you please inform me whether it is necessary that a boat should be licensed or enrolled in order that a material man can keep his right to put a lien on her for supplies.

Reply.—Neither is necessary.

Legal Jottings.

The Court of Appeals of Maryland has recently decided that a deed for benefit of creditors is void if it contains a stipulation that an attorney's fee for drawing the deed shall be first paid out of the assets. This is decided to be an illegal preference.

An old English judge once decided that to say "he is a thief, for he stole a woman's heart," is not slander, because a young lady's heart, not being a chattel, is not a subject of larceny, and to say that a man stole that which cannot be stolen is simply to make a silly, not a slanderous, remark.

Processing Machinery Wanted.

JENNINGS, LA., Aug. 23, 1885.

Editor Manufacturers' Record:

We are organizing a stock company, with a capital of \$5,000, to put up figs, nectarines and peaches in glass jars for family use. We intend making figs and nectarines a specialty. Our building will be 40x50 feet, 2 stories, 12 feet and 10 feet. We would esteem it a favor if you will give us the address of manufacturers who make processing machines and other material for putting up fruits.

E. R. SHANKLAND.

MINING NOTES.

By BRUNER & EAMES, Salisbury, N. C.

In answer to inquiry regarding the Royster Mining Co. and Harris Copper Mine, near Blue Wing, N. C., we state as follows: Wiley Royster formerly owned the mine known as the Royster, but has sold to the Big American Reduction Co., who has as its president John Logan, Esq., president of the First National Bank of Dillsburg, Penna. What has been known as the Harris Mine is a piece of property on which two Ohio parties are operating in a small way. Mr. Chas. W. Edgecomb, late of California, now of Blue Wing, N. C., will shortly publish a pamphlet on the operations and resources of that immediate vicinity.

MANTAHALA TALC MINE.

William S. Thomas, of the Mantahala Mining Co., has shipped three car loads, of 10 tons each, of beautiful white talc from their mines on the Mantahala river, in the western part of North Carolina. Mr. Thomas is located at Charleston, Swain county.

WEBSTER MINING CO.

The Webster Mining Co., of Webster, Jackson county, N. C., is composed of Northern parties, who are engaged in mica and gold mining in the western part of the State. At present they employ 40 or more men in operating the Georgetown gold mine. They have been blasting out a rim rock in order to drain a basin in which is supposed to be rich deposits of wash gold. If they are successful they will employ a large number of hands.

GOLD HILL.

Prof. Thomas Price, formerly superintendent of Placerville gold quartz mine, California, has recommended the expenditure of \$50,000 at Gold Hill, in Rowan county, N. C. The English stockholders are considering the feasibility.

ALUM CAVE.

A. D. Potts, of Charleston, Swain county, N. C., writes us of a wonderful cave and tract of land just over the line in Tennessee. The cave he describes as containing alum, copperas and magnesia, near which is a vein of gold ore, which has a value of \$10.30 per ton. Some day this must be the seat of a large industry.

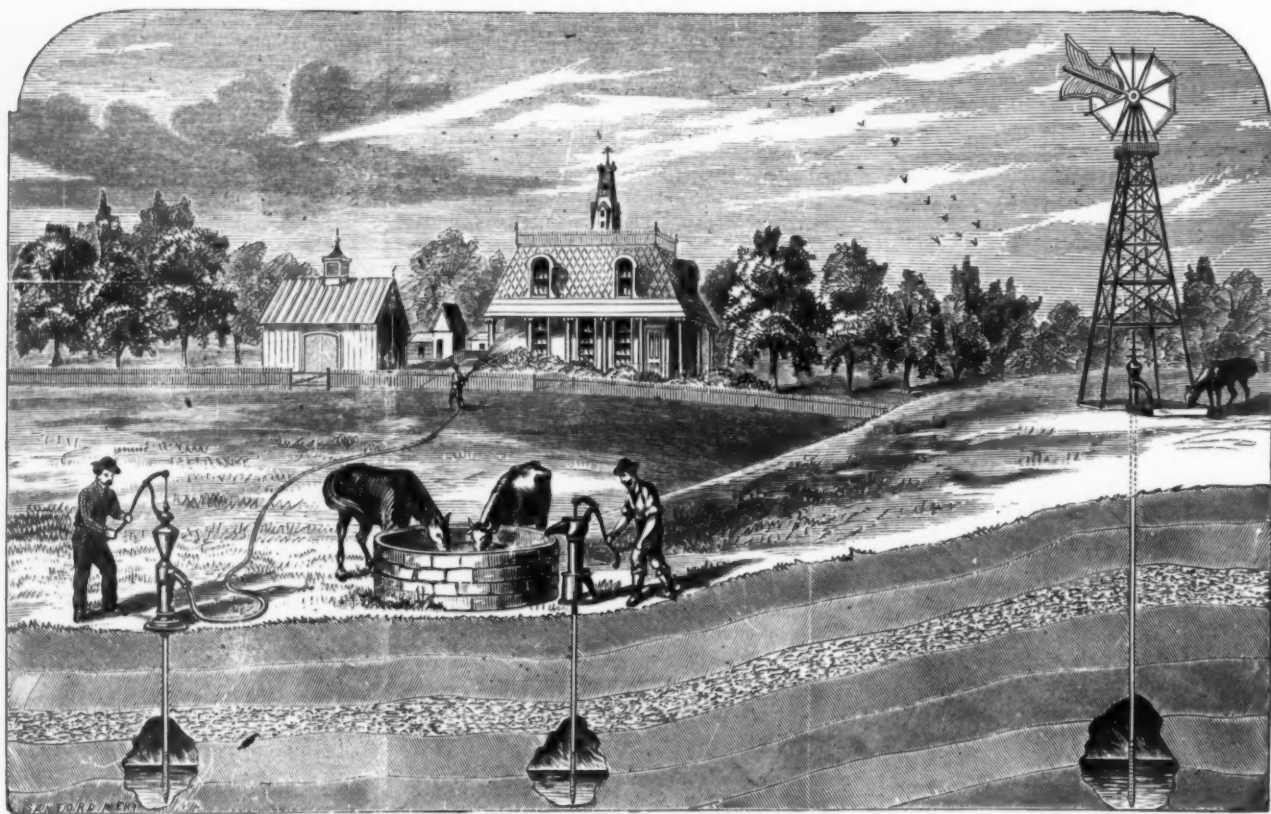
American Driven Well.

The accompanying illustration represents the American Driven Well, which has been in successful operation in various parts of the world since 1868. This well consists of a point with screen driven into the ground and ordinary wrought iron pipe used to form the well, with a pump attached to draw the water. These goods have been manufactured by W. & B. Douglas, of Middletown, Conn., since the discovery of this principle of constructing wells, and since 1832 this house has been engaged in manufacturing all styles of pumps for domestic and farm purposes. This establishment has had a steady growth from a small beginning in the year noted, 1832, until now they employ some 275 men making over 1000 different varieties of pumps and hydraulic machines generally. Their wares are known to the hardware and plumbing trade all over the country and are not excelled for superiority of construction and the simplicity of arrangement, so that their goods are easily repaired and very durable. The Driven Well is especially adapted to country, having a sandy soil. The pumps manufactured by this establishment were

Mr. O. C. KING, of Morristown, Tenn., writes to the MANUFACTURERS' RECORD as follows: "I own, 30 miles south from Morristown, Tenn., on the N. C. Division of the E. T., Va. & Ga. R. R., and within 70 miles by rail (direct distance much shorter) of as fine coking coal as is found in the United States, a mountain of specular iron ore, and 7 miles from it another mountain of brown hematite ore; 12 miles from it I own another mountain of brown hematite. These are three of the most extensive deposits of iron in the South. The ores are very rich and exceptionally pure. They have only recently been reached by rail, and hence are unknown. I am unable to operate them, and am growing old and want to enjoy the benefit of ownership. I want to organize a company to operate the properties, if possible; if that be impracticable, I will sell. I own in and around the growing town of Morristown very large and advantageously located tracts of land suitable for city extensions, &c., &c. I want to organize a land improvement company to lay them off into lots, with streets, &c., plant trees, make some improvements and sell. The town is growing rapidly; not a vacant house in it; quite a demand now for houses; money can be made rapidly. There is a great deficiency of capital here."

The oldest brand of flour in the United States is the "Patapsco," made by the C. A. Gambrill Manufacturing Co., of Baltimore. This brand was established over 100 years ago. This company own and operate three mills of 500 barrels capacity each, making their daily output of flour 1,500 barrels. These mills are fitted with the latest and best machinery to be had, regardless of cost, and their management is in the hands of skilled men who thoroughly understand how to make good flour. There is no doubt of the fact that man needs no better flour than the "Patapsco Superlative," and even if he did need it, he would not be able to find it in this country. Those who have tested by continued use the leading brands of flour made in the country, give the "Patapsco" the preference over any other make.

MR. GEO. D. STONESTREET, M. E., of Birmingham, Ala., advertises in our Business Chances for a position as superintendent or manager of a mine in the South. Mr. Stonestreet will make mine surveys and also attend to ventilation.



THE AMERICAN DRIVEN WELL.

RUSSELL MINE.

A gentleman from the Russell Gold Mine, Eldorado P. O., Montgomery county, was in Salisbury last week purchasing supplies for the mine. He reports that owing to the scarcity of water the 20-stamp mill is in operation only 8 hours per day. They keep about 50 men employed and are producing a good grade of ore.

HAMILTON CORUNDUM MINE.

Walter Hamilton, M. E., of New York, is working a corundum mine near Democrat P. O., in Buncombe county, N. C. In the main shaft they are down 75 feet, and employ 25 to 30 hands.

LUCAS CORUNDUM MINE.

This mine is situated in Macon county, N. C., and has been worked by Dr. Lucas, of Boston, Mass., for the past four years. He employs 30 or 40 hands with teams, etc., hauling the corundum to the railroad, where it is shipped to Massachusetts and manufactured into emery wheels, etc. At present they ship about 10 to 15 tons per week from Webster, in Jackson county, that being the nearest railroad depot. Many rare and beautiful minerals are found associated with the corundum, especially the ruby.

THE REED GOLD MINE

is situated in the town of Concord, Cabarrus county, N. C. It is owned by Jole Reed, of that place, but is leased at present by Richard Sparnell, and other Gold Hill miners. They have sunk a shaft 75 feet deep on the quartz vein, and will work the ore on a Chilean mill. The ore pays about \$30 per ton. The vein is small.

MICA MINE.

G. D. Ray has developed a good deposit of mica near Burnsville P. O., in Yancey county.

TITUS COGGINS GOLD MINE.

formerly owned and worked by Geo. E. Saxton, a capitalist of Canton, Ohio, has been sold to an English company. As yet they have done no work, as much depends on the success of its neighbor, the Russell.

ADVERTISERS wishing to reach the manufacturers of all classes, mining companies, steel, iron and hardware dealers of the entire South, cannot find a better medium than the BALTIMORE MANUFACTURERS' RECORD. We are always prepared to furnish proof of our claims as to circulation.

used with the Driven Well, by the British in their expedition into Abyssinia. Illustrated catalogues will be sent upon application.

FUNK & WAGNALIS, (10-12 Dey Street, New York,) have in press for issue in a few days, "What the Temperance Century has Made Certain," by Rev. Wilbur F. Crafts, which will give in a compact and inexpensive form the facts and lessons of the first century of the temperance conflict just closing (preceded by a record of the random shots at the decanter made in earlier centuries by Solomon, Homer, Buddha, Mohammed, Shakespeare and others), with a symposium of suggestions for the future, from living leaders, including Neal Dow, Dr. Cuyler, Messrs. Willard, President Seelye, Joseph Cook, J. N. Stearns, Dr. Babcock, Dr. J. O. Peck, Dr. Miner, Gen. Fisk, Geo. W. Bain, Geo. W. Bungay, Rev. H. W. Conant, Mrs. Woodbridge, Mrs. Chapin, Mrs. Buell, and scores of others, who are permitted to give, without restriction, their views of the "third party" movement (for or against), and also of other living issues related to temperance. It will be issued in paper at 50 cts. and in cloth at \$1.00.

THE North Chicago Rolling Mill Company's South Chicago blast furnaces are, according to the American Manufacturer, making a reputation in the matter of coke consumption that may well arrest the attention of furnace managers elsewhere. To make a ton of pig iron with the consumption of a ton of coke has hitherto in this country been considered a feat of which to feel proud; but the furnaces named have done considerably better than this, as shown by the appended statistics of their work during the week ended August 15, 1885:

Furnace.	Tons Iron.	Tons Coke.	Pounds Per Ton.
No. 5.....	1,376	1,314	1,910
No. 6.....	1,406	1,347	1,914
No. 7.....	1,482	1,358	1,833
Total.....	4,264	4,019	...
Average.....	1,886

THE Wiley & Russell Manufacturing Co., Greenfield, Mass., have issued an August supplement to their price-list in which some of their labor-saving machinery and tools are fully illustrated and described. The supplement which will be sent upon application is of interest to machinists and others.

Passengers arriving in the city of New York via Grand Central Depot, save \$3 carriage hire and transfer of baggage, by stopping at the Grand Union Hotel, opposite said depot. Passengers arriving by West Shore Rail Road, via Weehawken Ferry, by taking the 42d street horse cars at Ferry entrance, reach Grand Union Hotel in ten minutes for 5 cents, and save \$3 carriage hire. Passengers arriving at Pennsylvania Depot, on reaching New York side, can take 6th Avenue Elevated Railroad at Cortlandt Street Station, and reach 42d Street Station, two blocks from Grand Union Hotel, in 20 minutes, for 10 cents, thus saving \$3 carriage hire. 600 elegant rooms, \$1 and upwards per day. European plan. Elevators, restaurant, cafe, lunch and wine rooms supplied with the best. Prices moderate. Families can live better for less money at the Grand Union than at any other strictly first-class hotel in the city. Guests' baggage delivered to and from Grand Central Depot, free. †

Signs of Better Times.

Four of the five cotton mills of Messrs. Wm. E. Hooper & Sons, of Baltimore, resumed operations last Tuesday. They are the Meadow, the Clipper, the Woodberry and Mt. Washington mills. Of these, all but the Meadow, where work was suspended May 1, have been closed since August 1. The Park mill, a small one, which was also closed August 1, will resume operations in a few days. The mills are now running with full force and on full time. The hours of work are from 6.30 A. M. to 12 M., and from 12.45 P. M. to 5.15 P. M.—ten hours in all. These mills employ 1,400 hands.

The Pittsburg Dispatch reports orders as pouring in on the steel-rail manufacturers of that section. The Dispatch says steel rails have advanced to \$30 and \$30.50 at the mills, the market is decidedly firmer, the mills have all they can do, and "enough orders to keep them in operation the remainder of the year." The orders are particularly heavy from the West, and there have been an unusual number of inquiries for rails for contemplated roads, the contracts for the construction not having been let.

MESSRS. W. B. BELKNAP & CO., Louisville, Ky., writes us as follows: "We congratulate you on the success you are making of your very excellent paper. You have done a great deal to call the attention to the South, its resources, and thereby to build up its business and credit. The compliments which you get from the press all over the country, and the constant quotations and extracts from your paper, are, however, quite a sufficient testimonial, without further ones from individuals."

THE Covert Manufacturing Co., of West Troy, New York, in their advertisement in this issue, call attention to the great reduction in the price of their patent adjustable soldering irons, due to the lessened cost of manufacturing by the use of new automatic machinery just completed. These soldering irons possess many points of superiority that strongly commend them to the attention of everyone needing such tools. The new prices and the points of merit will be found in the advertisement of this company.

WE are in receipt of an attractive photograph of the River View House, Oxford, Md., of which Mr. Rowland Hill is the proprietor. Oxford is a delightful country town possessing advantages as a summer resort which, if generally known, would soon fill half a dozen hotels with guests. The sailing is unsurpassed, and boats of all sizes, from a canoe to a schooner, can be hired at almost ridiculously low prices; fishing is good; the drives are very attractive over the best shell roads, and there is entire freedom from malaria. All the natural advantages of the place combine to make the town a most inviting summer resort. The River View House, of which Mr. Hill became proprietor last winter, is well kept, the fare is good and the cooking excellent, and a more accommodating host than Mr. Hill could hardly be found anywhere.

If you are not already a subscriber to the BALTIMORE MANUFACTURERS' RECORD, send us \$3 and you will receive it regularly for one year, or six months for \$1.50.

List of Patents

The following Patents were granted to citizens of the Southern States, bearing date Aug. 25, 1885. Reported expressly for this paper by Louis Bagger & Co., Mechanical Experts and Solicitors of Patents, Washington, D. C.

Andrews, H. K., Eureka Springs, Ark. Band cutter and feeder.....	325,222
Parmore, A. K., Milans, Texas. Wagon-brake.....	325,038
Barnes, Chas., Dayton, Ky. Automatic fire-extinguisher.....	325,977
Bolgiano, G. C., Baltimore, Md. Sash-balance.....	325,152
Brown, S. H., Leesville, Tex. Marking-device.....	325,154
Christopher, G. W., Paris, Tex. Liniment.....	325,919
Coffee, R. W., Liberty, Va. Soldering-iron.....	325,158
Cooper, N. A., Back Creek Valley, Va. Buckle.....	324,921
Fletcher, J. L., Corinth, Miss. Punching-machine.....	324,930
Garrett, Lee S., Fulton, Ky. Sash-fastener.....	324,839
Gornall, Richard, Baltimore, Md. Cable-railway.....	325,205
Gornall, Richard, Baltimore, Md. Traction-way.....	325,157
Gornall, Richard, Baltimore, Md. Apparatus to be used with traction-cables.....	325,158
Grant, B. B., and A. C., Hamilton, Ga. Guano-distributor.....	324,853
Hall, Major, and J. C. Ryan, St. Paul, Minn. Thill-coupling.....	324,837
Henry, J. J., Baltimore, Md. Car-brake.....	325,209
Hull, J. S., Baltimore, Md. Lubricating-oil can.....	325,087
Hutson, J. M., Harpersville, Miss. Universal planter and cultivator.....	324,938
Johnson, W. T., Columbus, Ga. Tucker for sewing machines.....	325,089
Jones, W. T., Prescott, Ark. Buckle.....	324,846
Keller, J. F., Shepherdstown, W. Va. Fertilizer-distributor.....	10,640
McAtee, A. B., Maysville, Ky. Treadle attachment.....	325,103
McLean, John, Camden, Ala. Wrench.....	325,001
McMillan, G. J., Teachey's, N. C. Seed-distributor.....	325,106
Naff, J. I. A., Winchester, Ky. Comb for grass seed harvesters.....	325,109
Neeley, A. E., Gurdon, Ark. Head-rest.....	325,006
Northen, Mary E., Lanier, Tex. Dress-chart.....	325,116
Peterson, B. W., Wheeling, W. Va. Method of and apparatus for setting tiles.....	325,009
Price, W. G., New Orleans, La. Current-meter.....	325,011
Rodes, Robert, Jr., Nashville, Tenn. Bicycle handle.....	325,014
Smith, W. D., and W. H. Paul, Baltimore, Md. Staying slits in garments.....	325,126
Stevenson, W. H. H., Baltimore, Md. Cansoldering machine.....	325,130
Wesson, J. H., Attalla, Ala. Car-coupling.....	324,609
Winston, John H. A., Lynchburg, Va. Saw-setting machine.....	325,035
Wright, Edwin, Leesburg, Va. Fastening-device.....	325,221
Zink, George, Clear Spring, Md. Operating device for swinging gates.....	325,144

PATENT LAW. TRADE MARK LAW.

PAUL BAKEWELL,

Attorney at Law,

417 OLIVE STREET, ST. LOUIS, MO.

REFERENCES:
Branch, Crookes & Co., }
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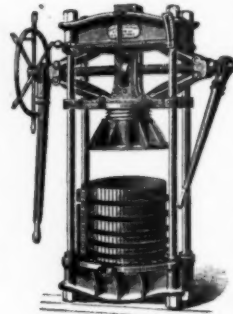
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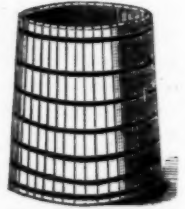
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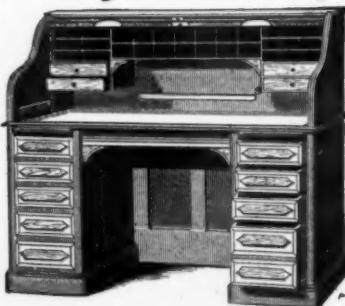
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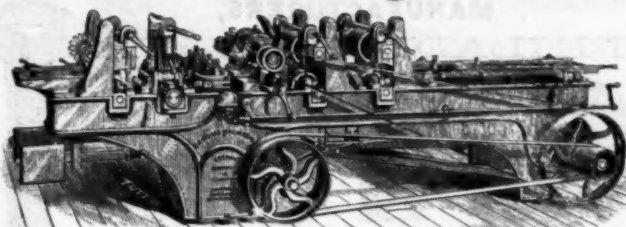
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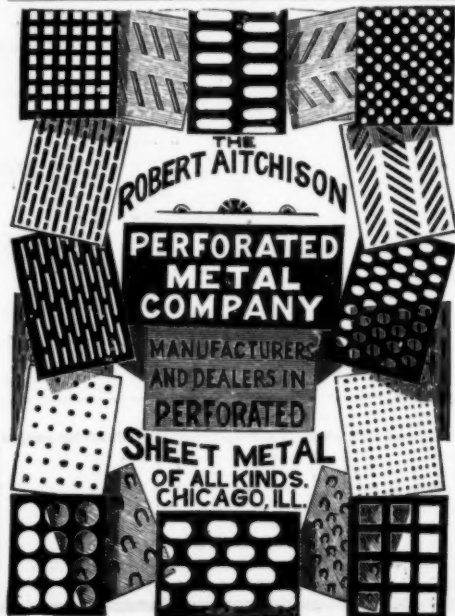
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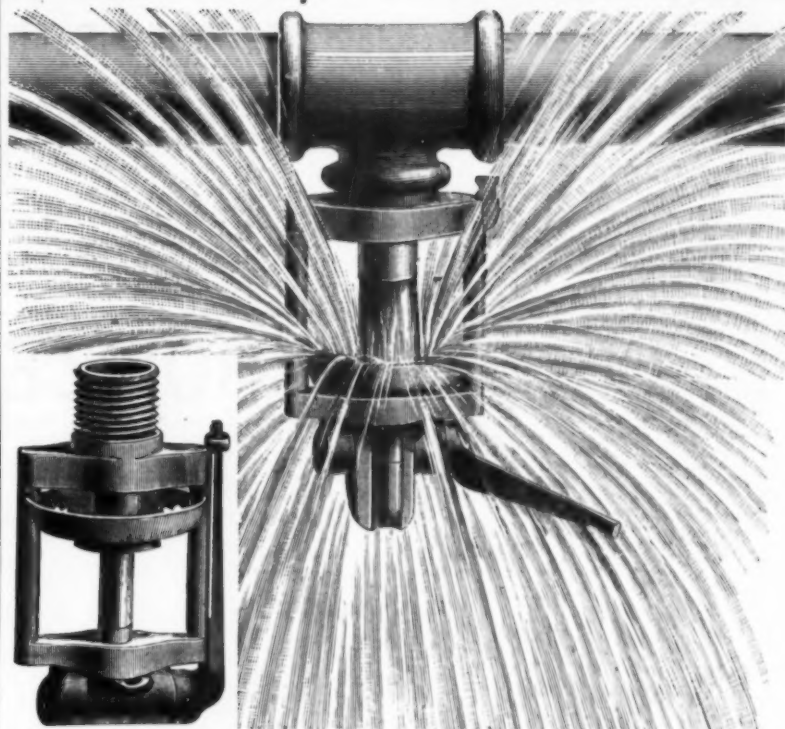
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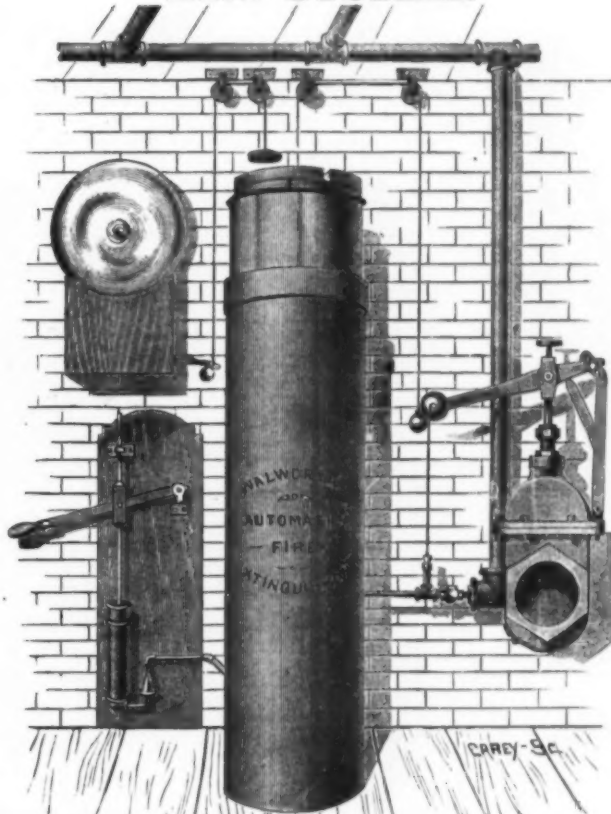
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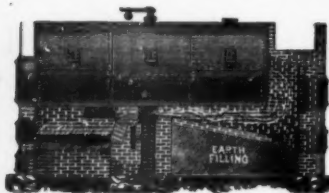


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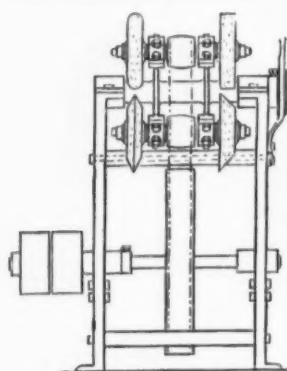
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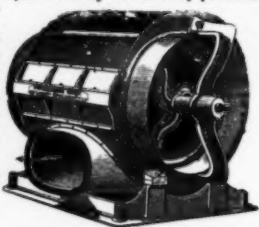
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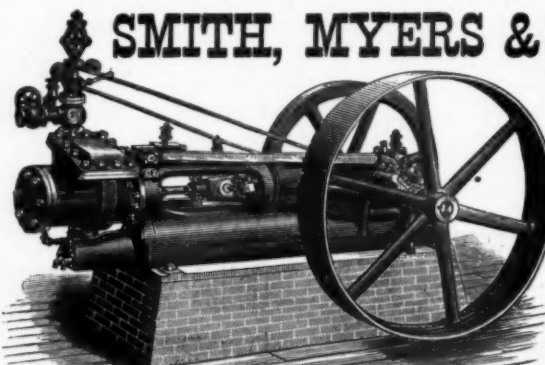
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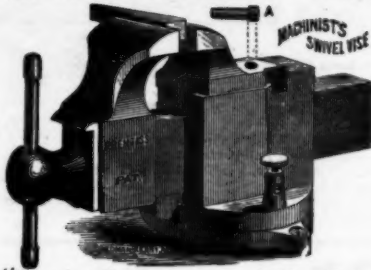


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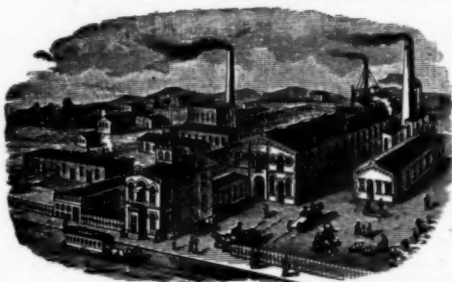
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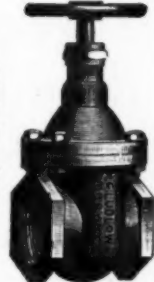
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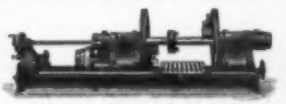
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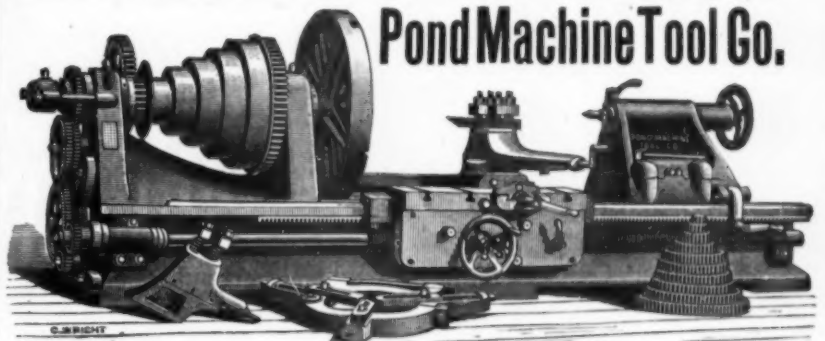
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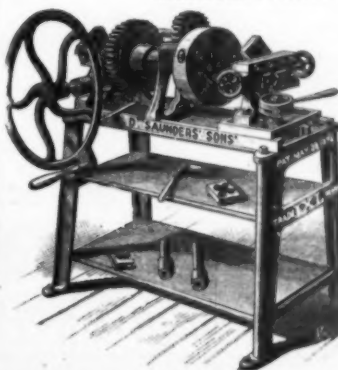
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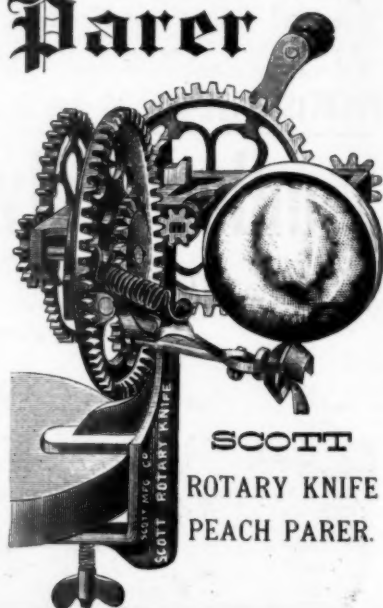
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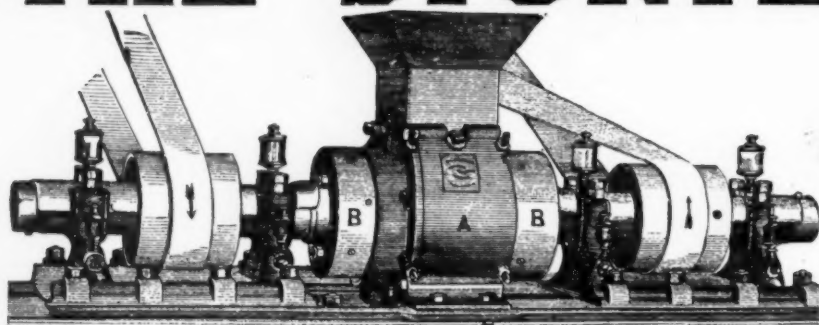
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THE STURTEVANT MILL. ROCK CRUSHER

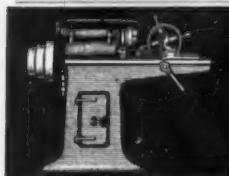
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of this invention, as it is the first mill ever constructed where the rock is made to grind itself. The expense of wear and tear is 75 per cent. less than any machine ever invented. No expensive foundations. No skilled labor required. One mill equal to a 30-stamp battery and crushers combined, occupies space of 12 feet by 4 feet in width. These machines are in operation on a large scale. Every mill warranted to do all claimed for it. Send for catalogue of this wonderful machine, and full information.

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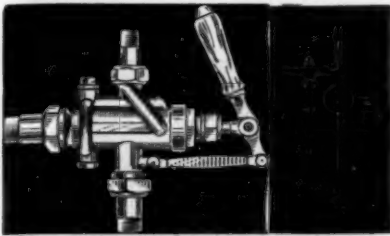
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BEING interested in quarrying fine Tennessee marble, I would like to correspond with some one having experience in sawing marble and with capital to invest, with a view to erecting a mill in connection with quarry. Address P. O. Box 72, Rogersville, Tenn.

ATLANTA.—Wanted party with \$3,000 to \$5,000 to join practical man in starting soap factory in this growing city; one who can sell goods and manage outside business. This is a fine opening. Address L. E. Boswell, Atlanta, Ga.

PARTNER WANTED to take an interest in a profitable manufacturing business in Middle Georgia. To a man with \$5,000 or more seeking investment and employment or investment alone, this is a fine opportunity. Address F. S. C., Macon, Ga.

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TO SOAP MANUFACTURERS.—The location of a soap manufactory is desired in a live and growing Southern city of 10,000 inhabitants, situated at the junction of two trunk lines of railroad, in the best section of the South, entirely free from malaria or epidemics. To a thoroughly practical man competent to manage the business and able to furnish half the capital required for a respectable establishment, inducements will be offered. Address Oil Mill, care **MANUFACTURERS' RECORD**, Baltimore, Md.

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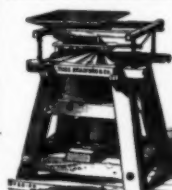
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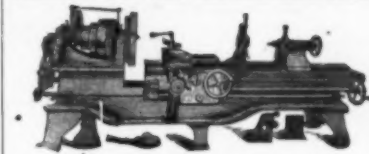
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The cost of this Mill is much less than any other machine of sufficient capacity to do the same amount of work.

It requires less power to run it, (10-horse being sufficient.)

The wear and tear of the Mill is much less than any other Quartz Mill doing the same amount of work, and the quality of the work done by it is greatly superior to work done in any other Quartz Mill now in use.

It crushes to a uniform fineness and makes no slimes, so that no sizing is required for concentration.

The Mill is equally well adapted to crushing and pulverizing of all classes of ores, either for amalgamation or concentration, and will pulverize and amalgamate from one-half to one ton per hour, according to character of ore and fineness of screens.

With ordinary care there is no loss of mercury by flouring, and consequent loss of gold, as in most other Mills where mercury is used in the Mill.

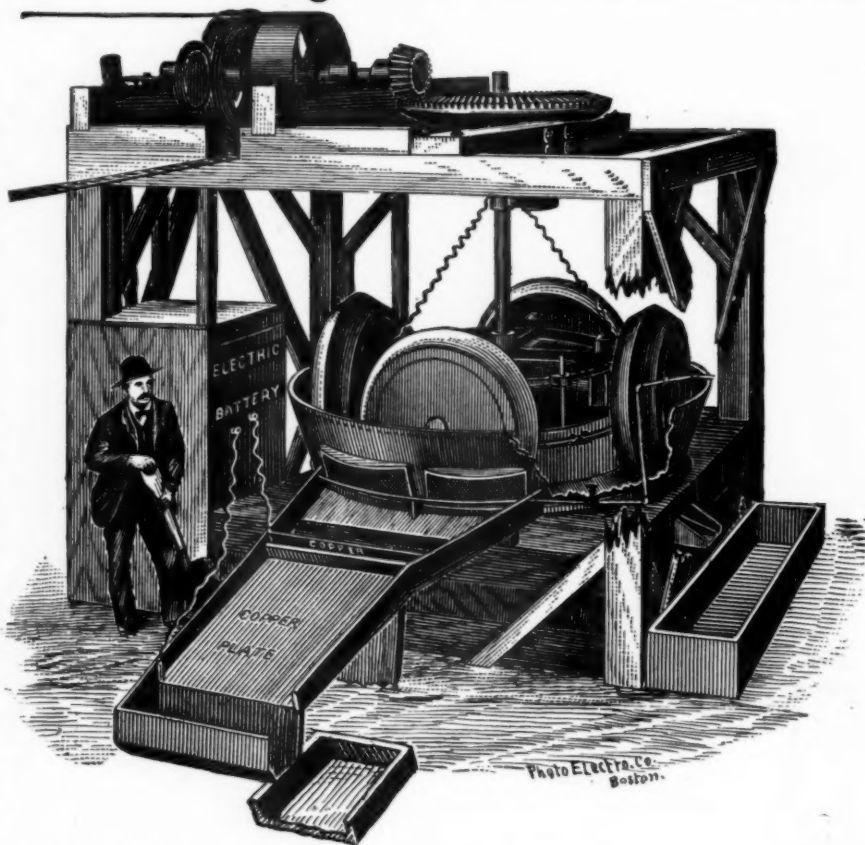
Amalgamation is carried on in the same operation with the crushing. The mercury is placed in the Mill in quantities varying from 10 to 40 pounds.

The application of electricity to the Mill for the purpose of cleaning and keeping the mercury alive has been to a very large extent superseded by the invention and introduction of the Mercury Trap in the Mill for the purpose of drawing off the mercury when charged with gold or on the slightest indication of flouring. By this ingenious device the mercury can be changed as often as desired without loss of time in either crushing or amalgamating. By opening this Trap the amalgam is discharged from the Mill in three minutes, and clean mercury introduced in its place.

To those familiar with running a Gold Mill this latter advantage will be greatly appreciated; in fact, it gives the mill-man full control of his work.

This Mill has been on exhibition at the foundry of Messrs. Bisbee & Endicott, at Chelsea, Mass., for the past 18 months, a good part of the time in active operation, and we have treated the most rebellious ores from many mining districts with most satisfactory results to the parties concerned.

The past year we have sold many Mills, which may be found in Michigan, North Carolina, Dakota, Montana, Idaho, Colorado, California, Mexico, Nova Scotia, etc. All those in operation are giving the most perfect satisfaction, as testimony will prove, and we will take pleasure in referring to any one of these on application.



We Furnish a Complete Mill for \$2,500, Delivered on Board Cars.

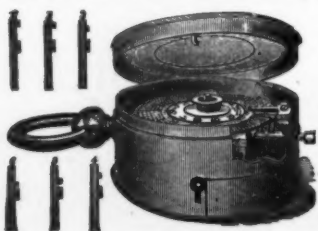
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The Instrument will in all Cases be Warranted Perfect and Satisfactory.

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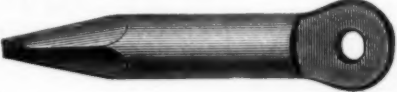
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Patent ★ Adjustable ★ Soldering ★ Irons.

Have been used for the past two years by many large manufacturers, and have given unbounded satisfaction, as many flattering testimonials we have received attest. As is seen in the accompanying cuts the copper point is pivoted on the handle, which allows it to be readily adjusted to any angle, thus avoiding the trouble of heating and bending the handle, so often necessary with the old style in difficult jobs of soldering and plumbing. If the copper swings too freely by reason of wear or otherwise, it is easily remedied by turning up the screw-bolt. In changing the position of the copper it is not necessary to loosen the screw-bolt, as the handle and copper are so constructed relatively that a proper pressure on the copper will work the desired change of position, it being immaterial how hot the copper may be. The inner surface of the forks are provided with concave or saucer-shaped depressions surrounding the screw-bolt, thus giving it a grip at the outer edges only, upon the coppers, and holding them perfectly secure in any position desired. When once supplied with handles it is only necessary to buy the coppers, as they are detachable, and when worn out or a change is necessary, they can be removed from the handle and another substituted, thereby saving the cost of the handle, and the worn-out copper can be disposed of as old metal. The figures $\frac{3}{4}$, $\frac{7}{8}$, etc., indicate size and denote the diameter of the copper of which the tool is made.

By the aid of new automatic machinery, just completed, we are enabled to reduce the cost one-third from former prices. Try them and you will not use any other.

We furnish to Order  All Styles of Coppers.

PATENT ADJUSTABLE SOLDERING IRONS.

List Nos.	List Price.
350, Iron, with $\frac{3}{4}$ in. Copper	per dozen, \$11 50
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DISCOUNT 60 and 20 per cent.

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List Nos.	List Price.
380, $\frac{3}{4}$ in. Copper	per dozen, \$ 7 20
382, $\frac{7}{8}$ "	" 9 00
384, 1 "	" 11 50
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A sample of $\frac{7}{8}$ in. Soldering Iron will be sent by mail, free of postage to any address, on receipt of sixty-five cents (65c.)

For sale by all leading jobbers handling this class of goods, and the same discounts given from the list to the trade as when purchased direct from the factory.

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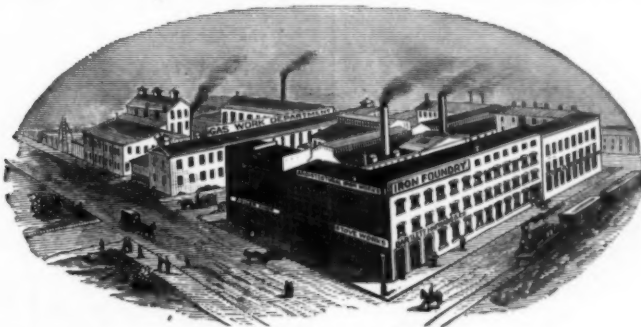
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SAVE YOUR FUEL!

Warner's Purifier and Heater

[PATENTED JULY 21, 1885.]

The best way to *cure* your steam boilers of incrustation and sedimentary deposit is to *keep out* of the boiler that which causes incrustation and sediment.

The chief ingredients causing sedimentary deposits and incrustation are organic matter, carbonate of lime, sulphate of lime, carbonate of magnesia, sulphate or sulphure of iron, and in salt water common salt.

The WARNER PURIFIER AND HEATER is the only machine which precipitates all impurities held in suspension, heats the water to the boiling point under full boiler pressure, separates and precipitates the mineral salts held in solution *before* the water reaches the boiler, and then injects the water thus purified into the boiler *boiling hot*. It is an automatic machine, entirely *outside* of the boiler, requiring absolutely no attention from the engineer except to blow off the accumulation of deposit from the bottom of the machine which acts as a mud-drum. All this is accomplished without the use of chemicals, by a purely mechanical process, regulated by the principles of natural philosophy.

No more "shutting down" of work to clean boilers—the machine does it all every day without interfering with the work, and by removing scale and preventing its formation, and heating the water to the boiling point *saves a large percentage* of fuel.

The WARNER HEATER AND PURIFIER COMPANY is now ready to furnish these machines on demand at very reasonable figures.

WASHINGTON, D. C., May 23, 1885.

This is to certify that I have made a careful examination of "Warner's Combined Purifier and Heater of Feed Water" in practical operation at the "Harris House" and "Post Building," in this city, and do not hesitate to pronounce it the *best* machine for the purpose ever invented. By its use the water goes into the boiler free from all impurities and heated to the boiling point under full boiler pressure, and as the result of the injection of pure water, the boiler is freed from scale and *kept clean*, while a large saving is made in fuel by the removal of the scale and heating the water to the boiling point *before* it enters the boiler. By the use of this machine the necessity of "shutting down" in order to blow out and clean the boiler is wholly obviated, as the impurities are all collected in the bottom of the machine, which can be blown out as many times a day as the engineer thinks proper without interfering with the workings of the boiler. I confidently commend this machine to all persons who own or use steam boilers, and am satisfied that its use will prolong the life of the boiler and make a handsome saving in the use of fuel.

(Signed) JOHN H. WILKERSON,

Inspector of Steam Boilers for District of Columbia, 220 7th Street, S. E.

"HARRIS HOUSE," COR. PENNSYLVANIA AVENUE AND E STREET, N. W.

WASHINGTON, D. C., June 23, 1885.

This is to certify that one of "Warner's Purifiers and Heaters of Feed Water" has been in use on one of the boilers of the Harris House, in this city, for three months, and has proved a perfect success. The boiler upon which the machine was placed was at the time covered with a heavy scale composed of animal and vegetable matter, lime, &c., which, by the use of this machine, has been entirely removed, the boiler being now as clean as when it came from the boiler-maker. This has been entirely accomplished, without the use of chemicals, by the injection of pure water through the "Purifier and Heater." This machine injects the water into the boiler heated to the boiling point under full boiler pressure, and by this means, together with the removal of the scale, results in a large saving of fuel. It is also *invaluable* in the purification of the water for laundry purposes. The machine is self-acting, and prevents the necessity of "shutting down" in order to blow out the boiler, as the impurities are all concentrated in the bottom of the machine, and can be blown out through the machine as often during the day as the engineer may deem advisable without interfering with the working of the boiler. I am convinced that its use will prolong the life of all boilers upon which it may be placed, save a large percentage of fuel, decrease the danger of explosion, purify the water for all purposes, and give general satisfaction. I confidently commend it to all hotels using steam and to owners of steam boilers generally as a much needed improvement that will do the work claimed for it thoroughly.

(Signed) JOHN H. HARRIS, Proprietor of Harris House, Washington, D. C.

WASHINGTON "POST" BUILDING, WASHINGTON, D. C., June 23, 1885.

This is to certify that one of "Warner's Purifiers and Heaters of Feed Water" was placed upon the boiler of the Post Building about 60 days ago as a test. At that time the boiler was covered with a heavy scale of animal and vegetable matter, lime, &c., which it was impossible to prevent. By the use of this Purifier and Heater, which injects the water into the boiler free from all impurities and heated to the boiling point, the scale has been removed and the consumption of coal reduced. The machine works itself and is invaluable as a purifier of water to all branches of business requiring pure water, such as hotels, laundries, &c., and a much needed adjunct to all steam boilers, prolonging their life, decreasing the danger of explosion and effecting a large reduction in the consumption of fuel. I confidently commend Warner's Purifier and Heater to all owners of steam boilers, being confident that their interests will be subserved by its use.

(Signed) J. FRANK MCGUIRE, Superintendent and Engineer Post Building.

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Hon. JOHN F. DEZENDORF,

Room No. 35 Corcoran Building,

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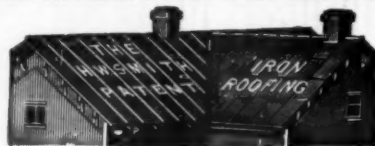
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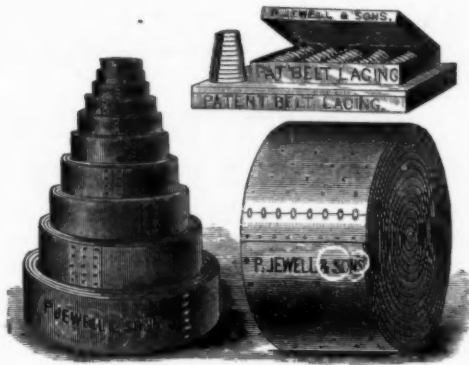
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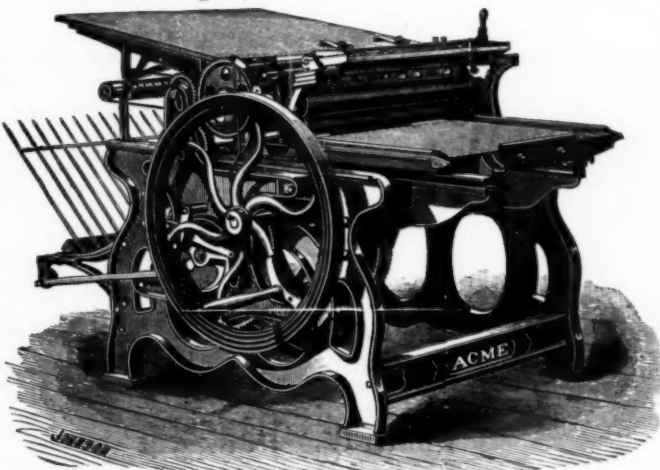
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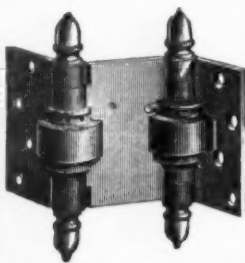
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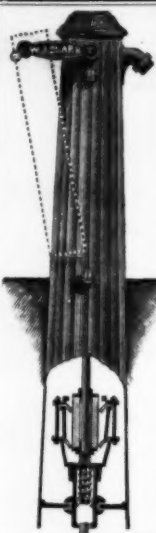
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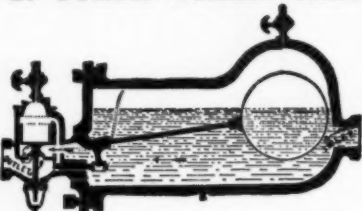
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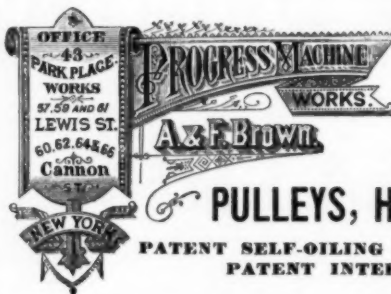
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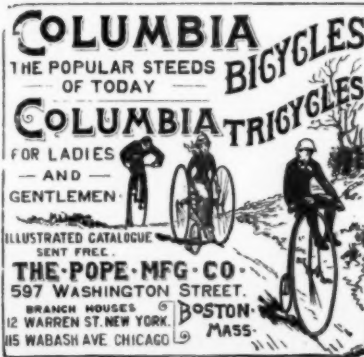
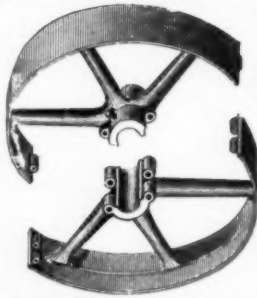
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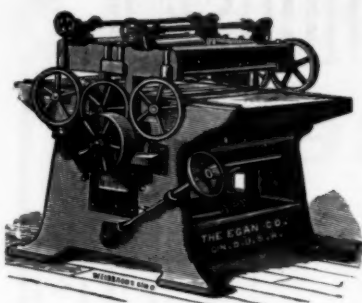
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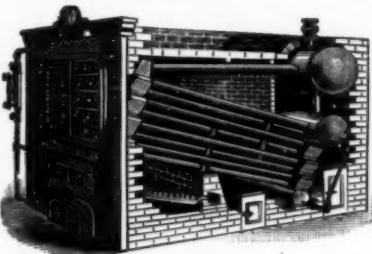
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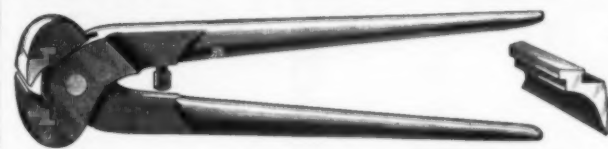
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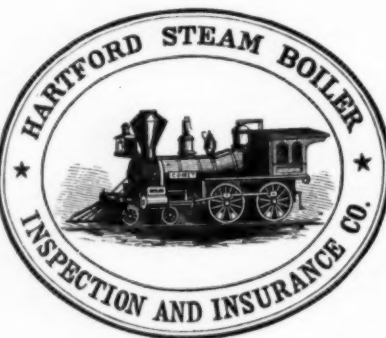
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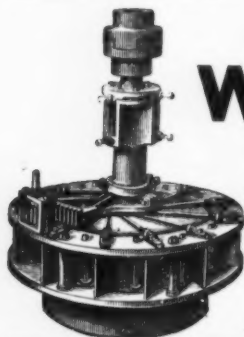
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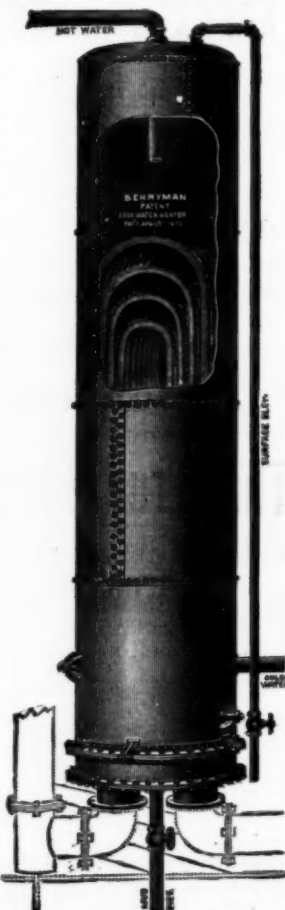
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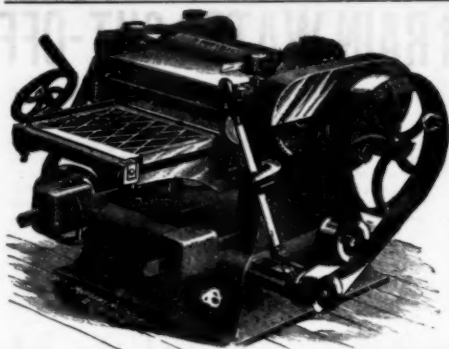
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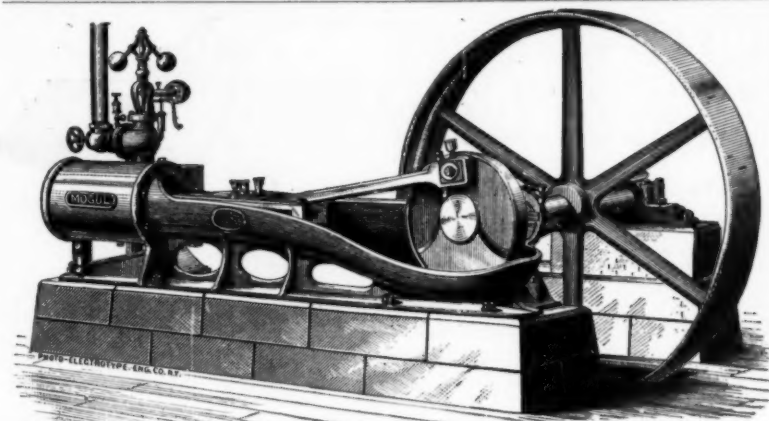
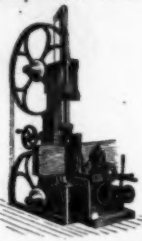




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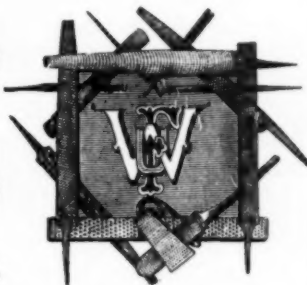
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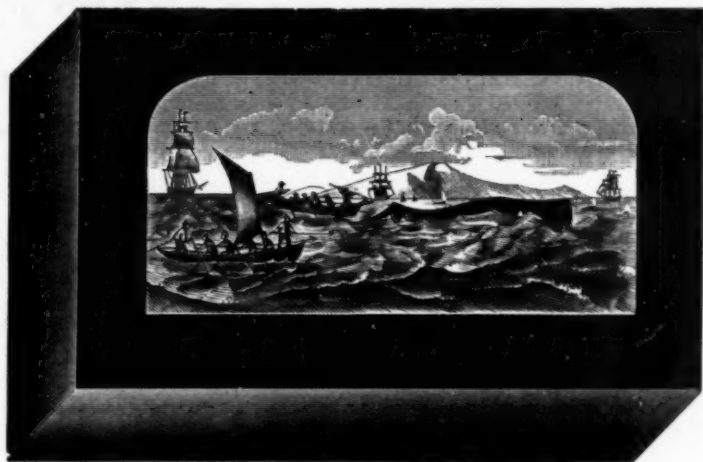
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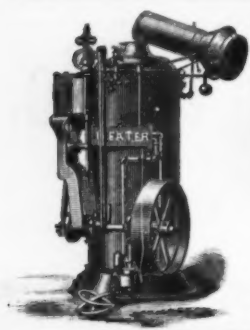
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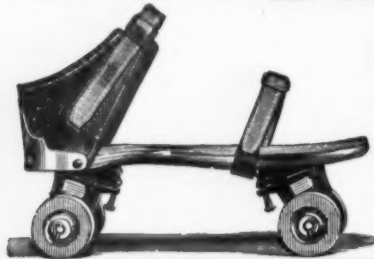
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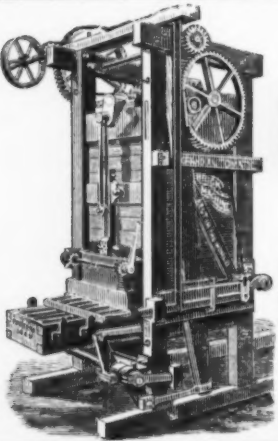
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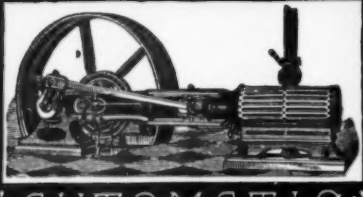
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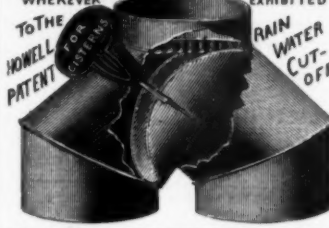
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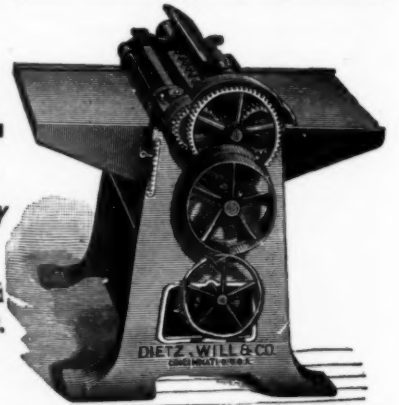
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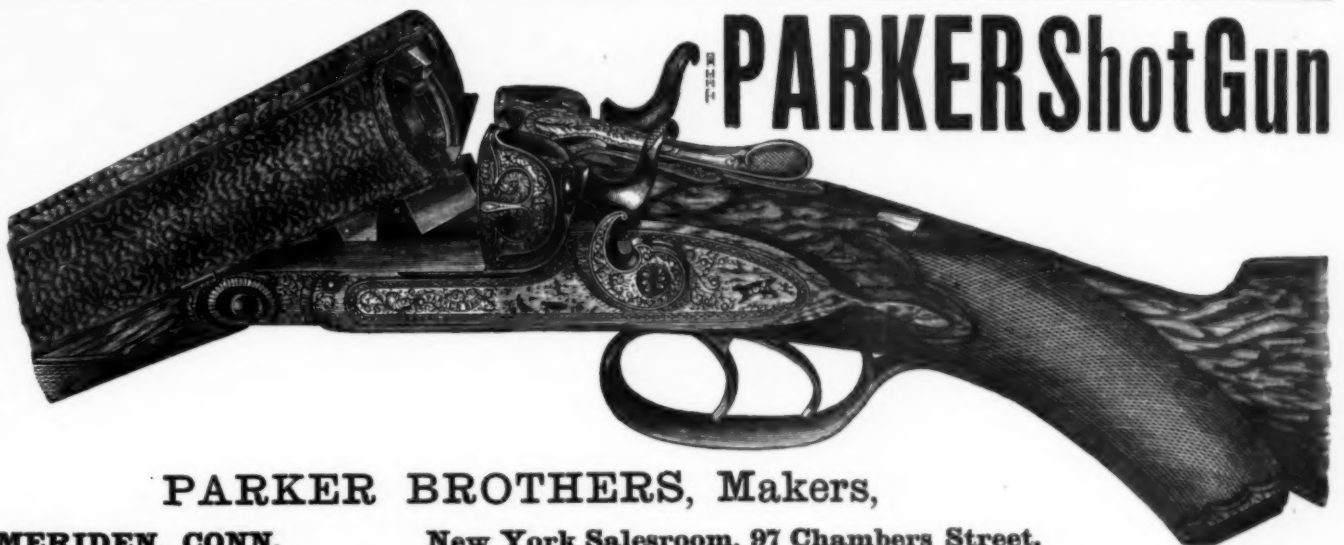
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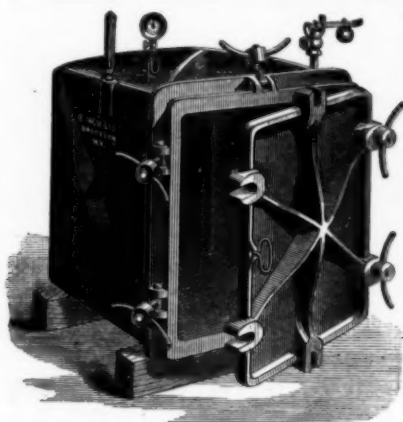
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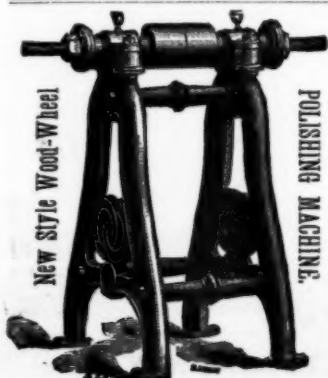
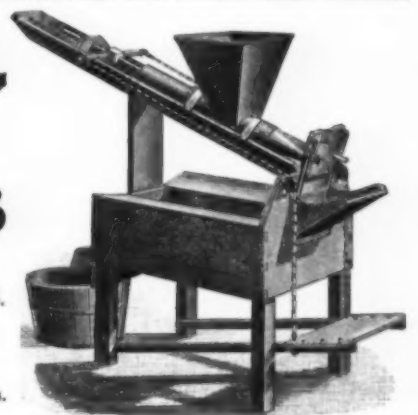
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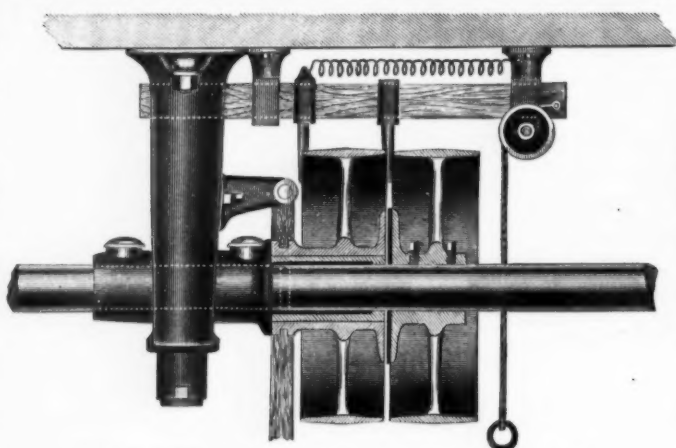
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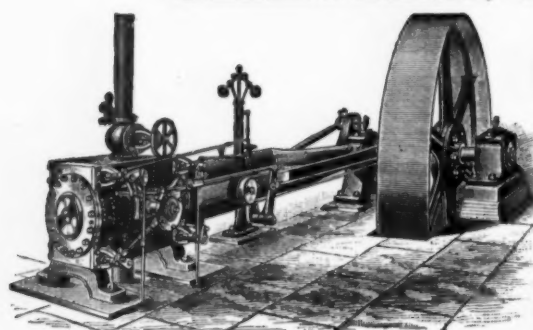
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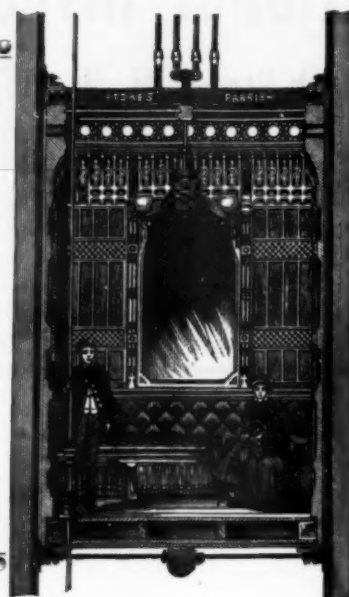
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